Facility Name:	UPA Kwik Fill Station #M-061 Bradford
Facility Address:	227 East Main Street, Bradford, PA
Responsible Party :	United Refining Company of PA
RP Mailing Address:	814 Lexington Avenue
	Warren, PA 16365
Storage Tank Facility ID#:	42-14809

Corrective Action Process Report/Plan Cover Sheet

CHAPTER 245
STORAGE TANK ACT

- ☐ **Site Characterization Report – Section 245.310(b)**
- ☐ **Site Characterization Report – Site-Specific Standard**
- ☐ **Site Characterization Report – Statewide Health or Background Standard**
- ☐ **Site Characterization Report PLUS – Statewide Health Standard**
- ☐ **Remedial Action Plan – Statewide Health or Background Standard**
- ☐ **Remedial Action Plan – Site Specific Standard**
- ☑ **Remedial Action Progress Report**
- ☐ **Remedial Action Completion Report – Statewide Health or Background Standard**
- ☐ **Remedial Action Completion Report – Site-Specific Standard**
- ☐ **Post Remediation Care Plan Report**
- ☐ **Environmental Covenant**

(check all that apply to the enclosed submission)

Remedial Action Progress Report Checklist

Review Date: _____ Reviewer/PO: _____

Facility: Kwik Fill Station #M-061, Bradford PA DEP Facility Id. No: 42-14809

Owner/Operator: United Refining Company of PA (UPA) Telephone: 814/726-4863

Address: 814 Lexington Avenue, Warren PA 16365

Remediation Standard Selected: Groundwater SHS, Soil SHS

Remediation Technology Selected: Groundwater VEGE, Oxygen Injection, Soil SVE

Administrative:

Notice of Reportable Release February 2013

Site Characterization Report submitted March 2015 Approved December 2015

Remedial Action Plan submitted October 2015 Approved December 2015

Remedial Action Progress Report submitted UPA has submitted quarterly RAPRs since 1st Quarter 2016

§245.312(c)(1-10) Completeness/Elements:

Check √

✓ (1) A summary of site operations and remedial progress made during the reporting period.

✓ (2) Data collected from monitoring and recovery wells showing depth to groundwater and thickness and horizontal extent of free product.

✓ (3) Groundwater contour maps depicting groundwater flow direction.

✓ (4) Quantitative analytical results from groundwater, surface water, soil and sediment sampling.

✓ (5) Maps for all media and all phases at specified times that indicate the distribution of concentrations of regulated substances.

___✓___(6) For fate and transport analyses, the following information, in addition to that required by § 250.204(f) (5) (relating to final report):

___✓___ (i) An isoconcentration map showing the configuration and concentrations of contaminants within the plume being analyzed.

___✓___ (ii) Sufficient information from monitoring data to establish whether the plume is stable, shrinking or expanding.

__NA__ (iii) Input parameters for the analysis and the rationale for their selection.

__NA__(iv) Figures showing the orientation of the model or analysis to the field data.

__NA__ (v) Comparison & analysis of the model or mathematical output to the actual field data.

___✓___ (7) Reporting period and cumulative amounts of free product recovered, groundwater treated, and soil and sediment treated or disposed.

__NA__ (8) Treatment and disposal documentation for waste generated during the reporting period.

__NA__ (9) Demonstration that Federal, State and local permits are being complied with.

- PAG5 Permit Number __NA__
- Treatment System Operating Installation completed in June. Operational in 4Q16.

___✓___ (10) A report of additional items necessary to describe the progress of the remedial action.

Comments:

Prepared By: Joseph E. Hinkle Title: Project Manager

Groundwater & Environmental Services, Inc.

WESTERN PENNSYLVANIA OFFICE

January 30, 2017

Mr. Don Hegburg
c/o Pennsylvania Department of Environmental Protection
Northwest Regional Office
230 Chestnut Street
Meadville, PA 16335

RE: PADEP Facility ID #42-14809
USTIF Claim #2013-0035(F)
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Dear Mr. Hegburg:

On behalf of United Refining Company of Pennsylvania (UPA), Groundwater & Environmental Services, Inc. (GES) is pleased to provide the enclosed 4th Quarter 2016 *Remedial Action Progress Report* for the above referenced facility. The report summarizes results for the most recent groundwater monitoring and remediation events conducted at this facility.

If you have any questions, please contact GES at (800) 267-2549 or Mr. Scott C. Wonsettler, P.G., the UPA Environmental Manager at (814) 726-4863.

Sincerely,

GROUNDWATER & ENVIRONMENTAL SERVICES, INC.

Joseph E. Hinkle
Project Manager
Ext. 3622

Enclosure

cc: UPA – S. Wonsettler
ICF International – G. Hawk
File

REMEDIAL ACTION PROGRESS REPORT
4th QUARTER 2016

UNITED REFINING COMPANY OF PA
KWIK FILL STATION #M-061
FACILITY ID #42-14809
227 EAST MAIN STREET
BRADFORD, PA
USTIF CLAIM #2013-0035(F)

Prepared for:

United Refining Company of PA
814 Lexington Avenue
PO Box 688
Warren, PA 16365

Prepared by:

Groundwater & Environmental Services, Inc.
301 Commerce Park Drive
Cranberry Township, PA 16066

Prepared by:

Justin M. Paul
Associate Scientist

Reviewed by:

Erin M. Letrick, P.G.
Project Geologist

Joseph E. Hinkle
Project Manager

REMEDIAL ACTION PROGRESS REPORT
4th QUARTER 2016

Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

GENERAL INFORMATION:

Consultant:	Groundwater & Environmental Services, Inc. (GES)
Client contact:	Scott C. Wonsettler, P.G.
GES project manager:	Joseph E. Hinkle
GES geologist:	Erin M. Letrick, P.G.
GES engineer:	Scott Merritt, P.E.
PADEP contact:	Don Hegburg, P.G.
PADEP facility ID#:	42-14809
USTIF claim #:	2013-0035(F)
County:	McKean
Facility property status:	Active
No. of wells:	Ten perched zone groundwater monitoring wells (MW-1R, MW-3R, MW-4 through MW-7, MW-12 and MW-14 through MW-16), three perched zone groundwater recovery wells (RW-1 through RW-3), and thirteen overburden groundwater monitoring wells (MW-8 through MW-11, MW-13, MW-17 through MW-24).
Wells containing LNAPL:	None
Remedial system start date:	12/06/2016
Geology:	Unconsolidated fill material underlain by clay with shallow lenses of silty and/or clayey sand.

MEDIA/CONSTITUENTS OF CONCERN (COCs[1]):

Media	Historical COCs	Current COCs
Soil:	Benzene, toluene, ethylbenzene, naphthalene, 1,2,4-, trimethylbenzene (TMB) and 1,3,5-TMB[2]	Benzene, toluene, ethylbenzene, naphthalene, 1,2,4-TMB and 1,3,5-TMB[2]
Groundwater:	Benzene, MTBE, 1,2,4-TMB, and 1,3,5-TMB	Benzene, MTBE, naphthalene, and 1,2,4-TMB
Soil Gas:	Benzene	N/A- complete post remediation vapor intrusion assessment, as necessary

(1) COCs-constituents with confirmed exceedances of Act 2 MSCs during site characterization and/or ongoing monitoring.
(2) COCs in site soil will be re-evaluated at the time of soil attainment sampling relative to unsaturated/saturated conditions.

SITE HISTORY:

1990	In June, United Refining Company of Pennsylvania (UPA) discovered a line leak at the facility. Neither a verbal or written *Notification of Reportable Release* (NORR) were provided to the Pennsylvania Department of Environmental Protection (PADEP). Groundwater monitoring wells MW-1 through MW-3 installed by Erie Geological Contractors.
1992	In March, soil vapor extraction (SVE) system installed and activated.
2003	SVE system deactivated.
2013	On February 25th, Leak Detection Services, Inc. (LDS) were preparing for routine tightness testing when unusual levels of vapors were detected in the regular unleaded gasoline submersible pump pit. Further investigation revealed a small product "weep" from a threaded pipe fitting. The affected UST system was removed from service, repaired and returned to service on February 26th. A verbal NORR was called into the PADEP Northwest Regional Office (NWRO) on February 25th, and a written NORR was submitted on March 1st. Site characterization activities completed from June through December, including completion of eleven soil borings (SB-1 through SB-11), installation of eleven groundwater monitoring wells (MW-4 through MW-14) and installation of four soil gas monitoring points (VP-1 through VP-4). Unleaded gasoline impacts were identified in on- and off-site soil and groundwater at concentrations above current Act 2 used aquifer, residential and non-residential (U/R-NR) medium-specific concentrations (MSCs). Site characterization results identified an on-site perched groundwater zone and an on- and off-site overburden aquifer. Groundwater monitoring completed. Soil gas sampling completed on November 13th.
2014	Ten groundwater monitoring wells (MW-15 through MW-24) installed to delineate unleaded gasoline constituents in the on- and off-site overburden aquifer. Vacuum enhanced groundwater extraction (VEGE) and total phase extraction (TPE) remedial feasibility testing completed in April. Groundwater monitoring completed. Soil gas sampling completed on January 9.
2015	In March, *Site Characterization Report* (SCR) was submitted to PADEP. On- and off-site survey completed in April. Additional site characterization, including identifying outfall location of on-site storm water sewer completed. Installation of five injection points (IP-1S/D, IP-2, IP-3S/D, IP-4S/D and IP-5) completed for additional remedial feasibility testing completed in July. Remedial feasibility testing (air injection) completed in August. SCR Addendum and *Remedial Action Plan* (RAP) submitted to PADEP in October and subsequently approved in December. Groundwater gauging and sampling completed.
2016	In April, five nested injection points (IP-6S/D through IP-11S/D) and three recovery wells (RW-1 through RW-3) were installed. Four additional nested injection points (IP-12S/D through IP-15SD) were completed in June. Remedial system installation and start-up completed. Quarterly groundwater monitoring and reporting and VEGE system O&M in progress.

SITE ACTIVITIES:

Site monitoring wells gauged and sampled:	12/16/2016
System groundwater samples collected:	11/17/2016, 12/07/2016, 12/26/2016

GROUNDWATER MONITORING & SAMPLING:

Perched Groundwater Zone

Depth to groundwater:	6.48 ft (RW-1) to 13.20 ft (MW-16)
Groundwater elevation:	85.40 ft (MW-16) to 92.99 ft (MW-1R)
Apparent flow direction:	North/northeast
Hydraulic gradient:	0.55 ft/ft (Avg.)

Overburden Aquifer

Depth to groundwater:	7.67 ft (MW-9) to 29.88 ft (MW-23)
Groundwater elevation:	53.94 ft (MW-24) to 82.32 ft (MW-9)
Apparent flow direction:	Northwest
Hydraulic gradient:	0.12 ft/ft (Avg.)

Groundwater sampling frequency:	Quarterly
Analytical method:	EPA Method 8260B
Analytical parameters:	BTEX, MTBE, naphthalene, isopropylbenzene, 1,2,4-TMB, and 1,3,5-TMB

GES collected groundwater gauging data and quarterly samples from the monitoring well network on December 16, 2016. Groundwater contour maps for the perched groundwater zone and overburden aquifer are included as **Figure 1** (Groundwater Contour Map [Perched Groundwater Zone], December 16, 2016) and **Figure 2** (Groundwater Contour Map [Overburden Aquifer], December 16, 2016), respectively. Groundwater quality data are summarized in **Table 1** (Groundwater Data Summary) relative to current PADEP Act 2 U/R MSCs. Well construction details are provided in **Table 2** (Well Construction Summary). Groundwater laboratory analytical reports and chain-of-custody documentation are provided in **Appendix A**. The following exceedences were identified during the 4th quarter sampling event:

Well ID	Benzene (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)
PADEP Act 2 U/R MSCs	***5***	***20***	***100***	***15***	***420***
Perched Groundwater Zone					
MW-1R	605	-	-	-	-
MW-4	514	-	-	42.9	-
MW-6	578	-	-	57.6	-
MW-7	263	-	-	147	-
RW-1	233	-	-	40.6	-
RW-2	177	123	-	83.6	-
RW-3	141	-	215	1,410	560
Overburden Aquifer					
MW-8	-	24.5	-	-	-
MW-9	-	267	-	-	-
MW-10	-	97.6	-	-	-
MW-11	-	98.6	-	-	-
MW-13	-	1,590	-	-	-
MW-19	-	64.8	-	-	-

U/R MSCs = used aquifer, residential medium-specific concentration
µg/L = micrograms per liter
MTBE = methyl tert-butyl ether
TMB = trimethylbenzene
- = concentration not detected above PADEP Act 2 U/R MSC

GROUNDWATER DATA EVALUATION:

- **Figure 3** (Benzene Groundwater Isoconcentration Map [Perched Groundwater Zone], December 16, 2016) illustrates the current extent of dissolved phase benzene above U/R MSCs in the on-site perched groundwater zone. Note that detected exceedances for methyl tert-butyl ether (MTBE), naphthalene, 1,2,4-TMB, and 1,3,5-TMB were identified within the benzene plume. **Figure 4** (MTBE Groundwater Isoconcentration Map [Overburden Aquifer], December 16, 2016) illustrates the current extent of dissolved phase MTBE above U/R MSCs in the on- and off-site overburden aquifer.
- Historical data indicates dissolved phase hydrocarbons (DPH) concentration trends in both the perched groundwater zone and overburden aquifer appear to be related to fluctuating groundwater elevations (**Figure 5**, DPH Concentration/Groundwater Elevation Trendline Graph [A-J]). Dissolved phase concentrations have decreased since the initial release.

SENSITIVE RECEPTORS:

Potential sensitive receptors:	This site is located in a mixed commercial and residential area of Bradford (McKean County). Undeveloped land borders the property to the south, a residential property is adjacent to the west and multiple residential properties are located to the north, across Mill Street, and east, across East Main Street. The nearest residential properties with a basement are approximately 140 feet west and 150 feet east from the site. Two wells located off-site approximately 0.24 and 0.28 miles from the site are used for industrial and domestic use, respectively. The nearest surface water body is Tunungwant Creek located to the north of the site. Tunungwant Creek flows north approximately nine miles into the Allegheny River.
Closest known well:	One well is located approximately 0.24 miles west of the site and is used for industrial use. One additional well for domestic use is located approximately 0.28 miles southeast of the facility.
Municipal water supply:	According to the Bradford City Water Authority, potable water is supplied to the site and surrounding area by the City of Bradford. The City of Bradford obtains its raw water from three separate reservoirs located approximately 4.35, 5.45 aud 6.20 miles west of the site.

REMEDIATION GOALS:

- The targeted goal for soil and groundwater at this site is attainment of Statewide Health Standards, as determined by Act 2, The Land Recycling and Environmental Remediation Standards Act.

REMEDIATION SYSTEM OPERATION AND MAINTENANCE DATA:

Remediation system recovery equipment:	Rotary claw vacuum pump, air compressor, and pneumatic pumps, air sparge blower	
Remediation system treatment equipment:	(2) 600-pound vapor phase carbon units (2) 200-pound liquid phase carbon units Sediment filters for water treatment	
Percent operational this period:	Groundwater extraction	100%
	Soil vapor extraction	NA
System water sampling frequency:	Monthly (influent, midfluent, and effluent)	
Groundwater discharge permit:	City of Bradford	
	4th Quarter 2016	**To Date:**
Average groundwater recovery rate (gpm):	0.13	NA
Total volume of water treated (gallons):	1,649	1,649
Dissolved phase hydrocarbons recovered (pounds):	0.001	0.001
System vapor sampling frequency:	Monthly (influent) and quarterly (midfluent and effluent)	
System vapor sampling analytical parameters:	BTEX, MTBE, TMBs, C_4-C_{10}	
Air discharge permit:	PADEP Plan/Approval Exemption per PA code 127.14(a)(8) paragraph 43	
Average vapor recovery rate (scfm):	NA	NA
Vapor phase hydrocarbons recovered (pounds):	NA	NA

On November 4 and 17, 2016, effluent groundwater samples were collected to confirm effluent groundwater analytical results met discharge permit stipulations. Following receipt of analytical results confirming compliance, the groundwater components of the VEGE system were activated on December 6, 2016. Pending dewatering of the perched zone, the SVE components will be activated. The oxygen injection system will be activated following maintenance by the system manufacturer. Hydrocarbon recovery data is summarized in **Table 3** (Hydrocarbon Recovery Data). Remediation system sampling results are summarized in **Table 4** (Remediation System Sampling Results: Water). System analytical reports and chain-of-custody documentation are provided in **Appendix B**.

WASTE MANAGEMENT:

- No investigation/remediation derived wastes disposal reported for the current quarter.

COMMENTS:

- Adsorbed phase hydrocarbons (APH) remain in on-site soil near the UST field, dispenser islands and current station building at concentrations above U/NR MSCs. Act 2 MSCs were revised in 2016. Evaluation of data indicates 1,3,5-TMB in off-site soil is no longer a concern. Soil data will be further evaluated during soil attainment demonstration. Historical soil data tables and isoconcentration maps provided in the March 2015 SCR are included in **Appendix C** (Historical Soil Documentation).

- A vapor intrusion screening assessment was completed in November 2013 and January 2014. A summary of soil gas sampling data is included in **Appendix D** (Historical Vapor Intrusion Documentation). Unleaded gasoline constituents were either not detected or detected at concentrations below applicable PADEP MSC_{SG}, except for benzene at VP-2 on November 11, 2013. Due to APH concentrations above current U/R MSCs in soil near the current station building, a soil gas screening assessment was completed as part of the March 2015 SCR. Based on results of soil gas analytical data and the soil gas screen assessment vapor intrusion is not a concern. Active remediation is proposed for the site as well. An additional vapor assessment will be completed following active remediation, as necessary.

PLANNED ACTIVITIES:

- Continue quarterly groundwater monitoring and reporting.
- Oxygen injection system maintenance by manufacturer
- Activate SVE components
- Routine VEGE system operation and maintenance

FIGURES:

- Figure 1 Groundwater Contour Map (Perched Groundwater Zone), December 16, 2016
- Figure 2 Groundwater Contour Map (Overburden Aquifer), December 16, 2016
- Figure 3 Benzene Groundwater Isoconcentration Map (Perched Groundwater Zone), December 16, 2016
- Figure 4 MTBE Groundwater Isoconcentration Map (Overburden Aquifer), December 16, 2016
- Figure 5 DPH Concentration/Groundwater Elevation Trendline Graph (A-J)

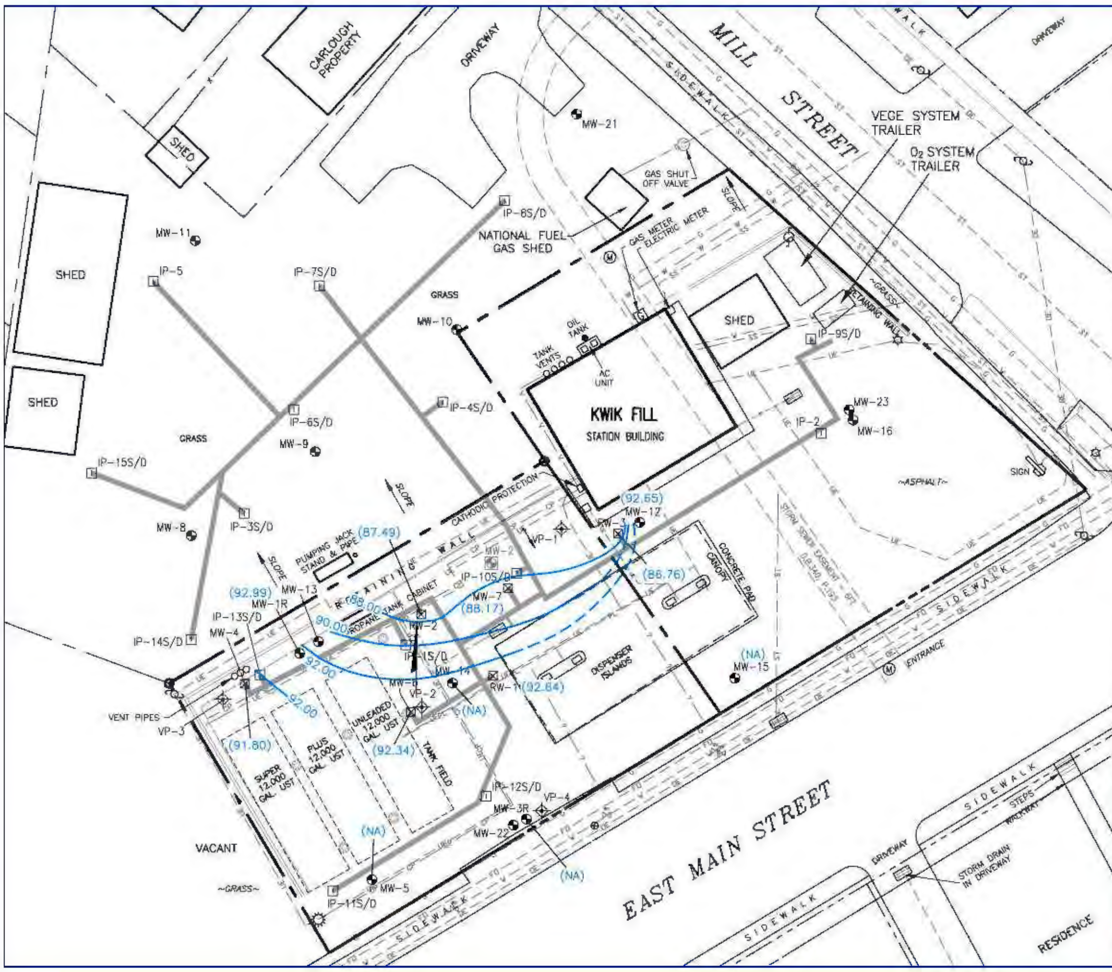
TABLES:

- Table 1 Groundwater Data Summary
- Table 2 Well Construction Summary
- Table 3 Hydrocarbon Recovery Data
- Table 4 Remediation System Sampling Results: Water

APPENDICES:

- Appendix A Groundwater Analytical Report and Chain-of-Custody Documentation
- Appendix B System Analytical Reports and Chain-of-Custody Documentation
- Appendix C Historical Soil Documentation
- Appendix D Historical Vapor Intrusion Documentation

FIGURES



LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- INJECTION POINT
- RECOVERY WELL
- PL — PRODUCT LINE
- V — VENT LINE
- OE — OVERHEAD ELECTRIC LINE
- UE — UNDERGROUND ELECTRIC LINE
- CP — UNDERGROUND CATHODIC PROTECTION LINE
- SS — UNDERGROUND SANITARY SEWER LINE
- ST — UNDERGROUND STORM SEWER LINE
- FO — UNDERGROUND FIBER OPTIC LINE
- W — UNDERGROUND WATER LINE
- G — UNDERGROUND NATURAL GAS LINE
- T — UNKNOWN UTILITY LINE
- REMEDIAL SYSTEM TRENCH
- (92.65) GROUNDWATER ELEVATION (feet)
- 92.00 GROUNDWATER CONTOUR (feet) DASHED WHERE INFERRED
- APPARENT GROUNDWATER FLOW DIRECTION
- CONTOUR INTERVAL 2.00 (feet)
- (NA) NOT AVAILABLE

NOTES:

1) MONITORING WELLS MW-8 THROUGH MW-11, MW-13, AND MW-21 THROUGH MW-24 MONITOR THE OVERBURDEN AQUIFER AND WERE NOT USED TO GENERATE GROUNDWATER CONTOURS.

2) THE STORM SEWER CREATES AN APPARENT GROUNDWATER BARRIER RESULTING IN A SIGNIFICANT DIFFERENCE IN GROUNDWATER ELEVATIONS ON THE NORTH SIDE OF THE SITE. THEREFORE, ELEVATION DATA FROM MONITORING WELL MW-16 WAS NOT USED TO GENERATE GROUNDWATER CONTOURS.

3) ACTIVE SYSTEM WELLS: RW-1, RW-2, & RW-3.

DRAFTED BY: WAW	GROUNDWATER CONTOUR MAP (PERCHED GROUNDWATER ZONE) DEC 16, 2016
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: EL	
NORTH	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
	SCALE IN FEET 0 20 — DATE 1-24-17 — FIGURE 1


YOUGHIOGHENY CREEK
WILL STREET
HOMESTEAD AVENUE
YORK STREET
EAST MAIN STREET
KWIK FILL
VACANT
LEGEND
NOTE: MONITORING WELLS MW-1R, MW-7R, MW-4 THROUGH MW-7, MW-12, MW-14 THROUGH MW-16, AND RW-1 THROUGH RW-3 WITHIN THE REACHED GROUNDWATER ZONE AND WERE NOT USED TO GENERATE GROUNDWATER CONTOURS.
GROUNDWATER CONTOUR MAP
(GROUNDWATER ANOMALY) OCTOBER 16, 2018
KWIK FILL STATION #66-001
597 EAST MAIN STREET
YOUNGWOOD, PENNSYLVANIA
Groundwater & Environmental Services, Inc.
SCALE IN FEET
DATE
1=50=17
FIGURE
2

LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- INJECTION POINT
- RECOVERY WELL
- PL — PRODUCT LINE
- V — VENT LINE
- OE — OVERHEAD ELECTRIC LINE
- UE — UNDERGROUND ELECTRIC LINE
- CP — UNDERGROUND CATHODIC PROTECTION LINE
- SS — UNDERGROUND SANITARY SEWER LINE
- ST — UNDERGROUND STORM SEWER LINE
- FO — UNDERGROUND FIBER OPTIC LINE
- W — UNDERGROUND WATER LINE
- G — UNDERGROUND NATURAL GAS LINE
- ? — UNKNOWN UTILITY LINE
- REMEDIAL SYSTEM TRENCH
- (605) BENZENE CONCENTRATION (μg/L)
- 5 BENZENE ISOCONCENTRATION CONTOUR (μg/L) CONTOURS DASHED WHERE INFERRED
- (μg/L) MICROGRAMS PER LITER
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- NA NOT AVAILABLE

NOTES:

1) MONITORING WELLS MW-8 THROUGH MW-11, MW-13, AND MW-21 THROUGH MW-24 MONITOR THE OVERBURDEN AQUIFER AND WERE NOT USED TO GENERATE ISOCONCENTRATION CONTOURS.

2) THE ACT 2 USED AQUIFER RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR BENZENE IN GROUNDWATER IS 5 μg/L.

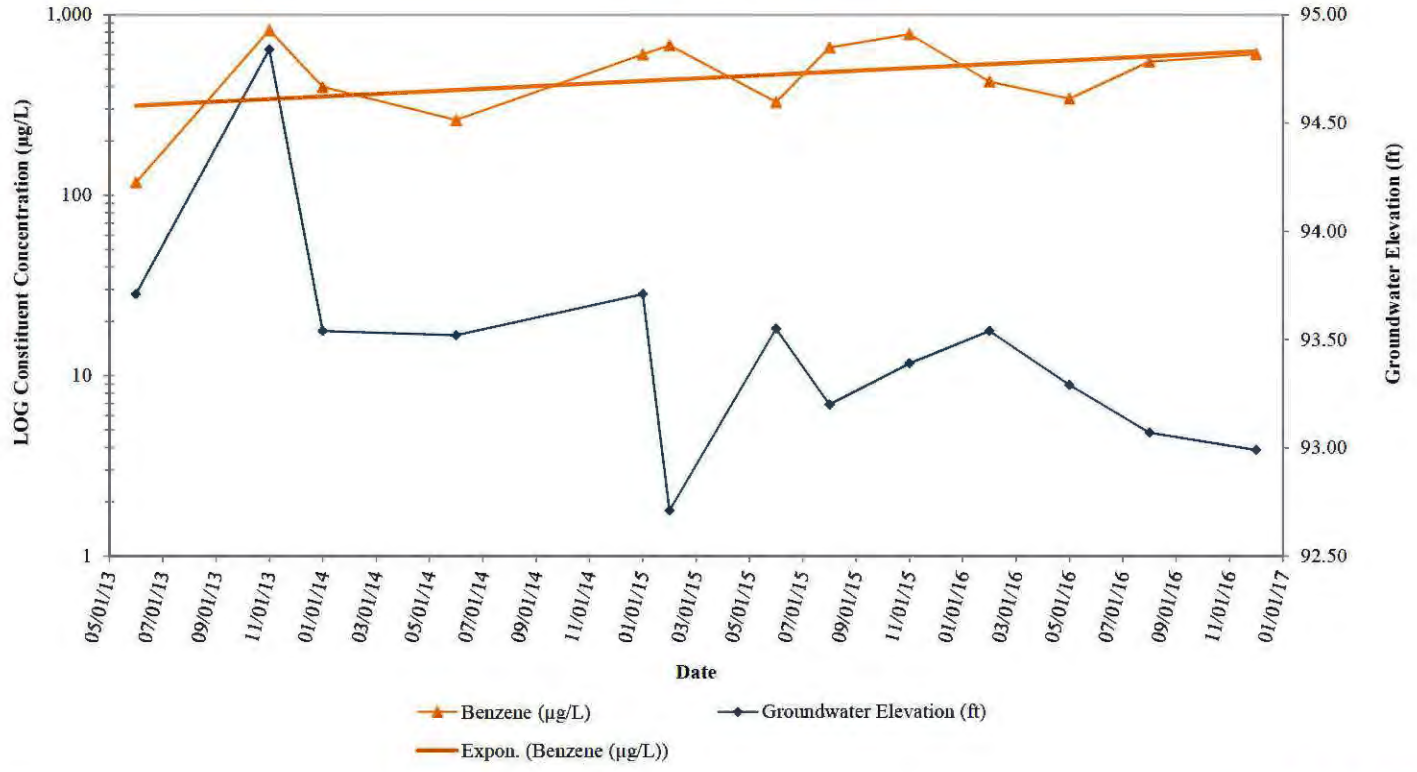
DRAFTED BY: WAW	BENZENE GROUNDWATER ISOCONCENTRATION MAP (PERCHED GROUNDWATER ZONE) DEC 16, 2016
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: EL	
NORTH	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
	SCALE IN FEET 0 20 | DATE 1-24-17 | FIGURE 3


LEGEND
PROPERTY BOUNDARY (APPROXIMATE)
FENCE
CATCH BASIN
UTILITY MANHOLE
UTILITY POLE
LIGHT POLE
WATER VALVE
DISPENSER ISLAND
GROUNDWATER MONITORING WELL
ABANDONED GROUNDWATER MONITORING WELL
HISTORICAL SOIL VAPOR EXTRACTION WELL
SOIL GAS MONITORING POINT
INJECTION POINT
RECOVERY WELL
PRODUCT LINE
VENT LINE
OVERHEAD ELECTRIC LINE
UNDERGROUND ELECTRIC LINE
UNDERGROUND CATHODIC PROTECTION LINE
UNDERGROUND SANITARY SEWER LINE
UNDERGROUND STORM SEWER LINE
UNDERGROUND FIBER OPTIC LINE
UNDERGROUND WATER LINE
UNDERGROUND NATURAL GAS LINE
UNKNOWN UTILITY LINE
REMEDIAL SYSTEM TRENCH
MTBE CONCENTRATION (µg/L)
MTBE ISOCONCENTRATION CONTOUR (µg/L)
CONTOURS DASHED WHERE INFERRED
(µg/L) MICROGRAMS PER LITER
MTBE METHYL tert-BUTYL ETHER
WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
NOT AVAILABLE
NOTES:
1) MONITORING WELLS MW-1R, MW-3R, MW-4 THROUGH MW-7, MW-12, MW-14 THROUGH MW-16, AND RW-1 THROUGH RW-3 MONITOR THE PERCHED GROUNDWATER ZONE AND WERE NOT USED TO GENERATE ISOCONCENTRATION CONTOURS.
2) THE ACT 2 USED AQUIFER RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR MTBE IN GROUNDWATER IS 20 µg/L.
MILL STREET
HOMESTEAD AVENUE
YORK STREET
EAST MAIN STREET
KWIK FILL STATION BUILDING
NATIONAL FUEL GAS SHED
RESIDENCE
VACANT
GRASS
GARAGE
SHED
ASPHALT
COMMERCIAL
MTBE GROUNDWATER ISOCONCENTRATION MAP (OVERBURDEN AQUIFER) DECEMBER 15, 2016
KWIK FILL STATION #M-081
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA
Groundwater & Environmental Services, Inc.
NORTH
SCALE IN FEET
DATE
1-24-17
FIGURE

Figure 5A

DPH CONCENTRATION/GROUNDWATER ELEVATION TRENDLINE GRAPH
(MW-1R)

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

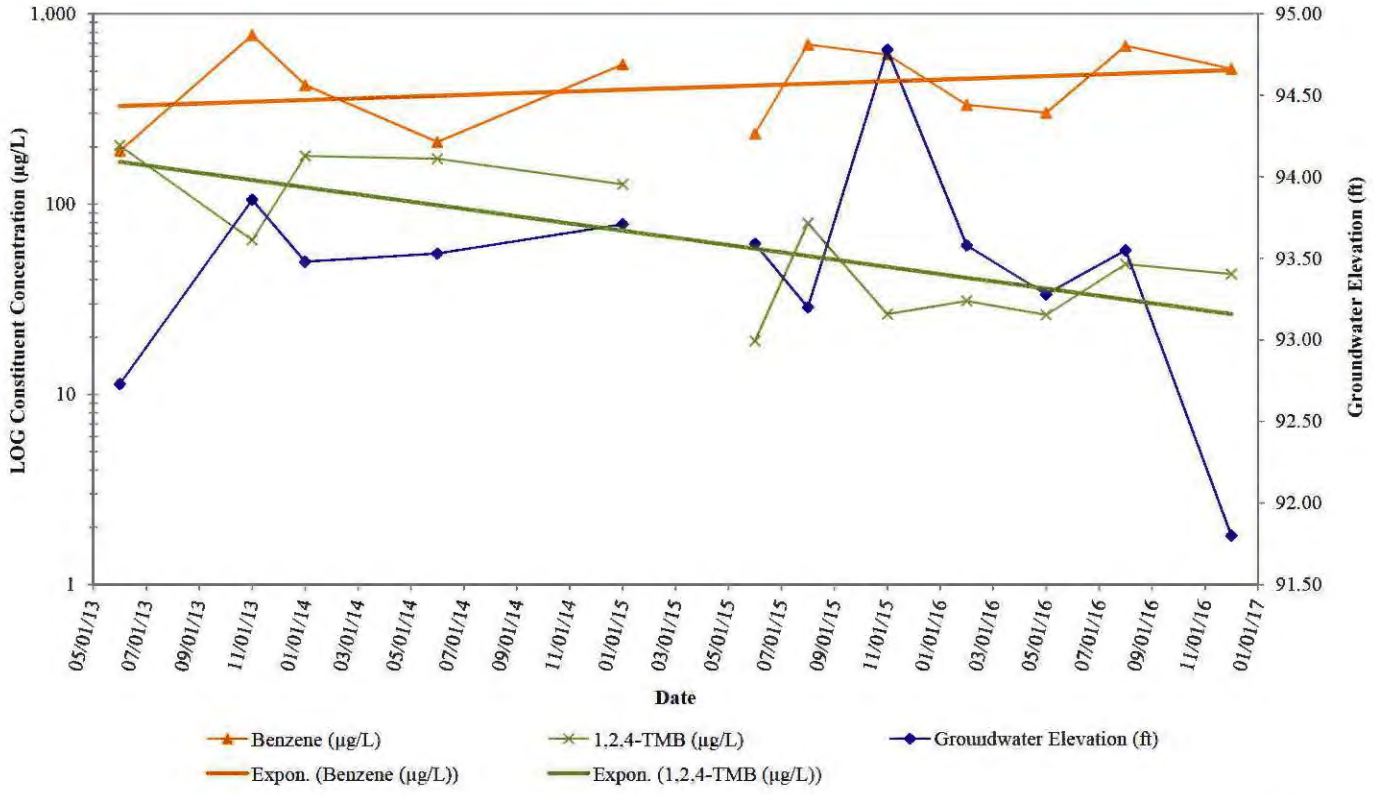


Note:
1. For graphing purposes, non-detect values are presented as 1/2 the laboratory reporting limit.

Figure 5B

DPH CONCENTRATION/GROUNDWATER ELEVATION TRENDLINE GRAPH
(MW-4)

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

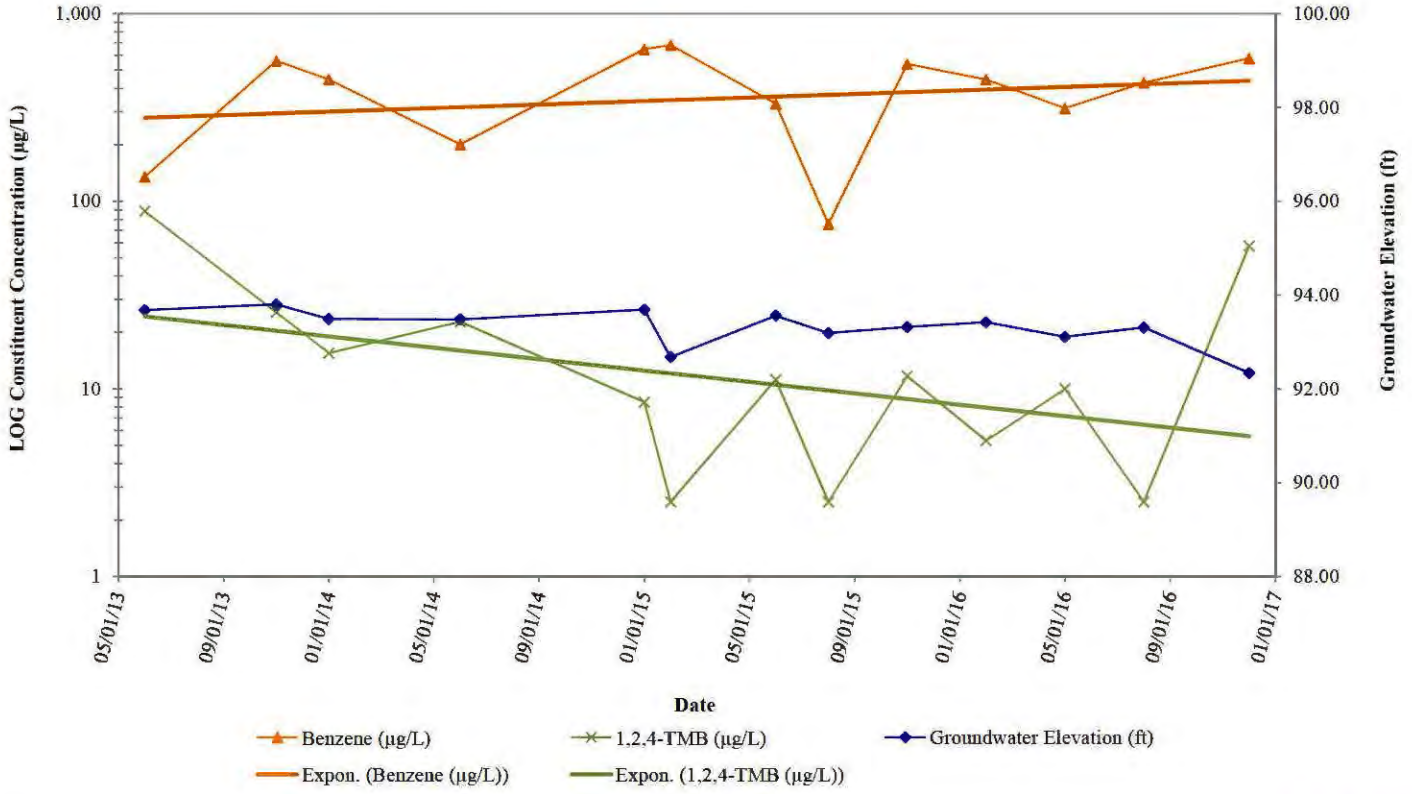


Note:
1. For graphing purposes, non-detect values are presented as 1/2 the laboratory reporting limit.

Figure 5C

DPH CONCENTRATION/GROUNDWATER ELEVATION TRENDLINE GRAPH
(MW-6)

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

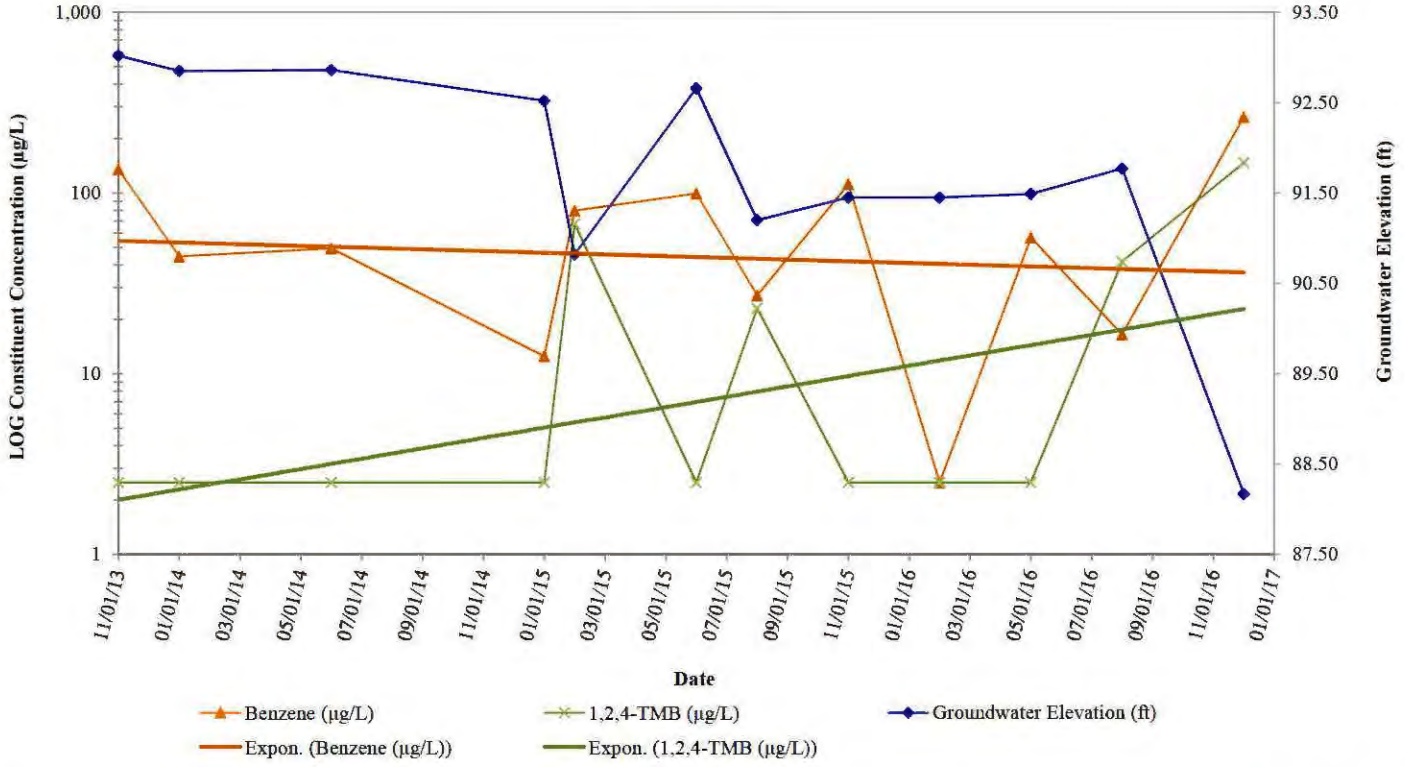


Note:
1. For graphing purposes, non-detect values are presented as 1/2 the laboratory reporting limit.

Figure 5D

DPH CONCENTRATION/GROUNDWATER ELEVATION TRENDLINE GRAPH
(MW-7)

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

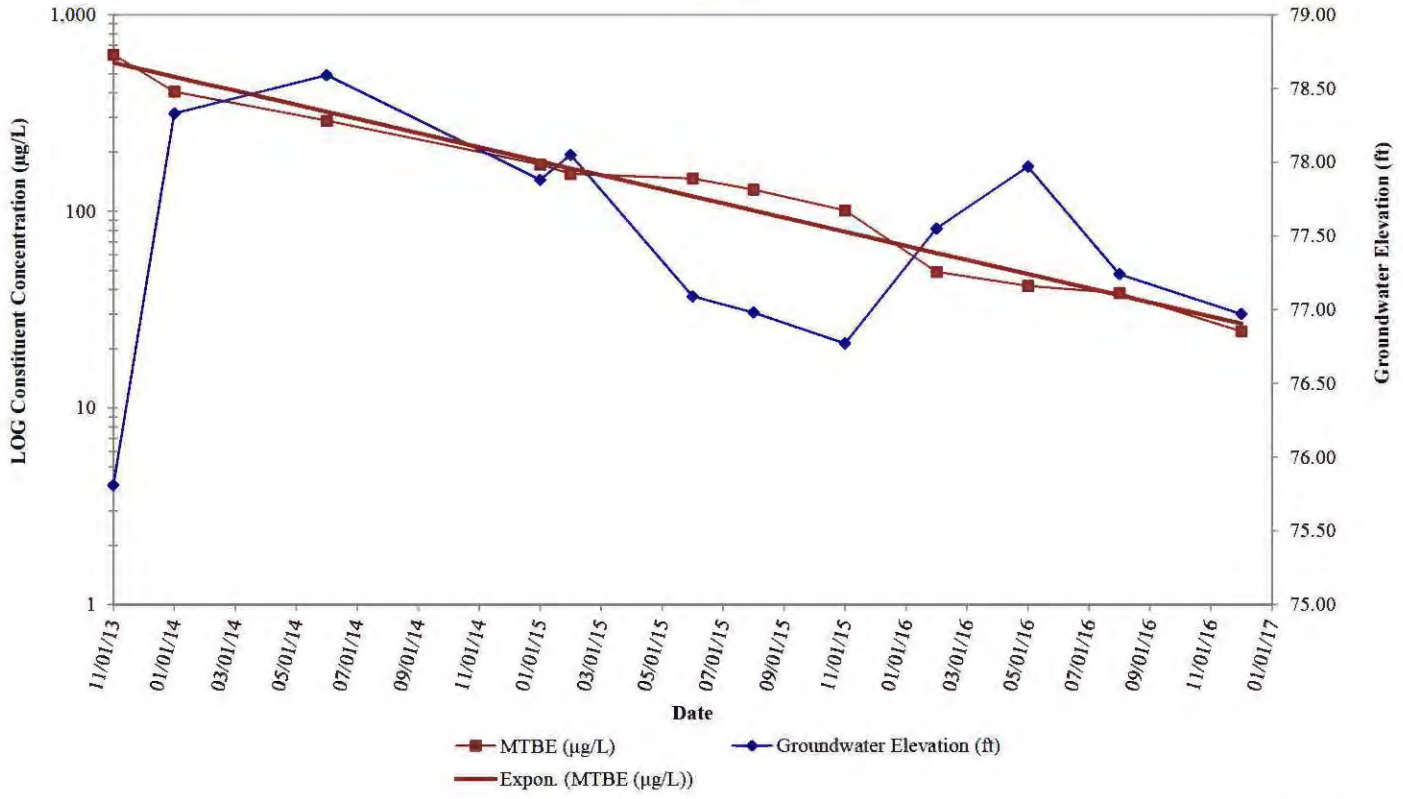


Note:
1. For graphing purposes, non-detect values are presented as 1/2 the laboratory reporting limit.

Figure 5E

DPH CONCENTRATION/GROUNDWATER ELEVATION TRENDLINE GRAPH
(MW-8)

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

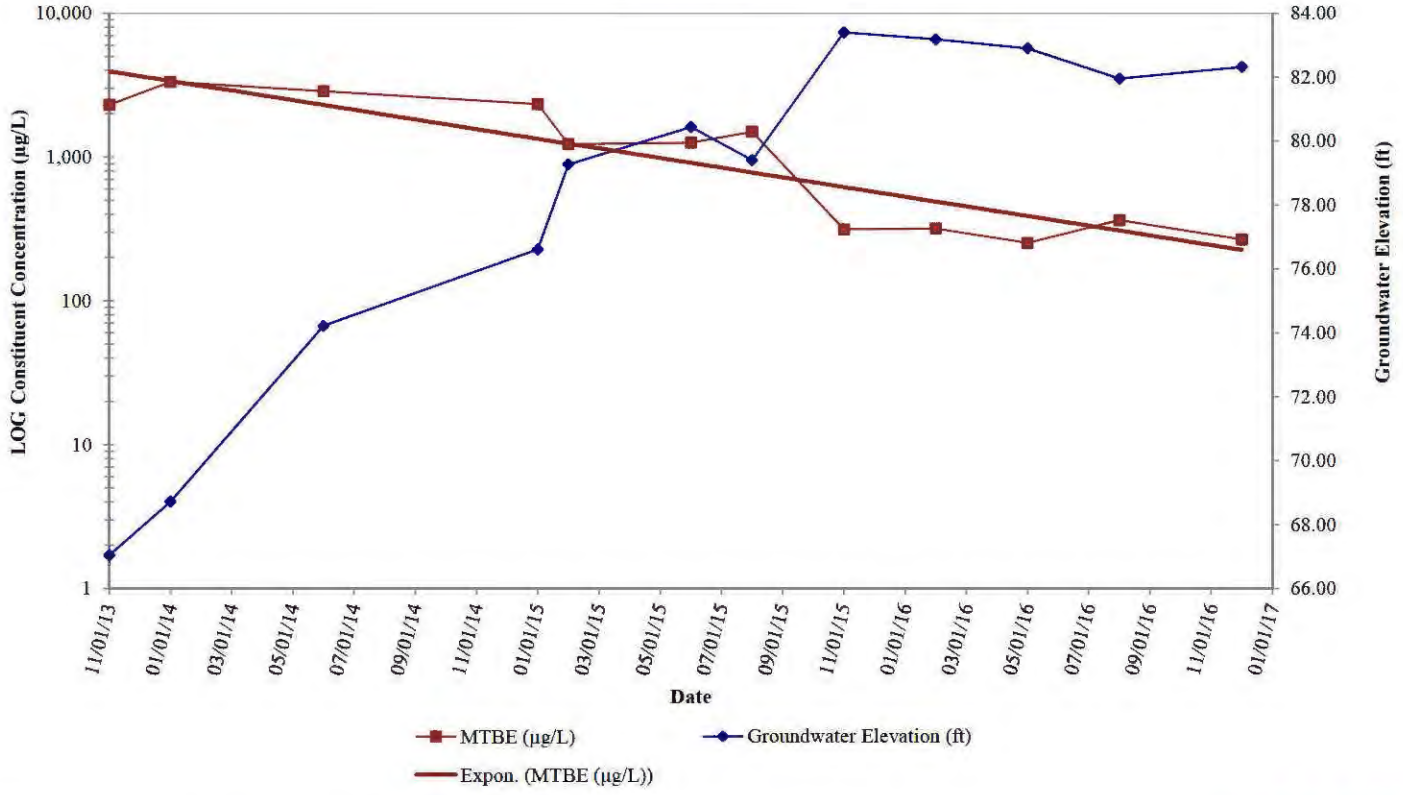


Note:
1. For graphing purposes, non-detect values are presented as 1/2 the laboratory reporting limit.

Figure 5F

DPH CONCENTRATION/GROUNDWATER ELEVATION TRENDLINE GRAPH
(MW-9)

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

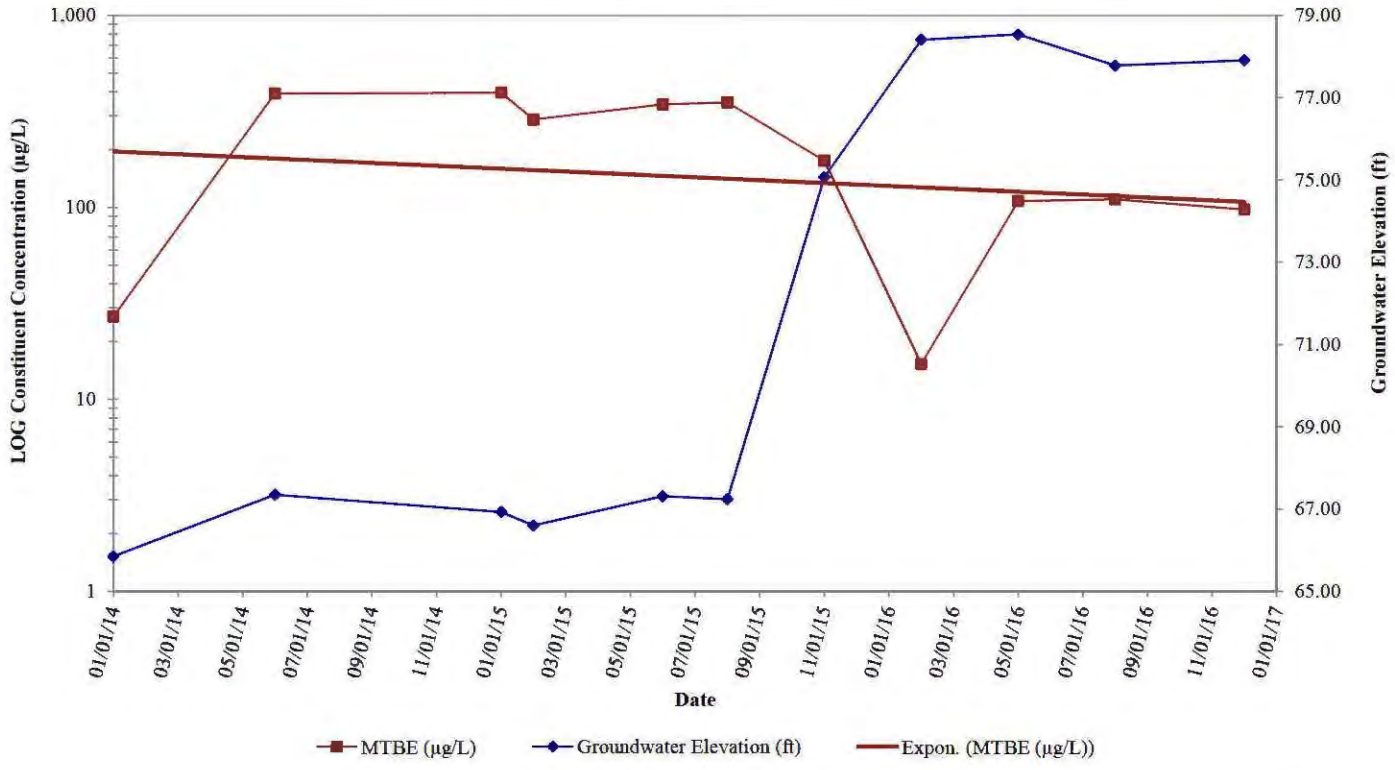


Note:
1. For graphing purposes, non-detect values are presented as 1/2 the laboratory reporting limit.

Figure 5G

DPH CONCENTRATION/GROUNDWATER ELEVATION TRENDLINE GRAPH
(MW-10)

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

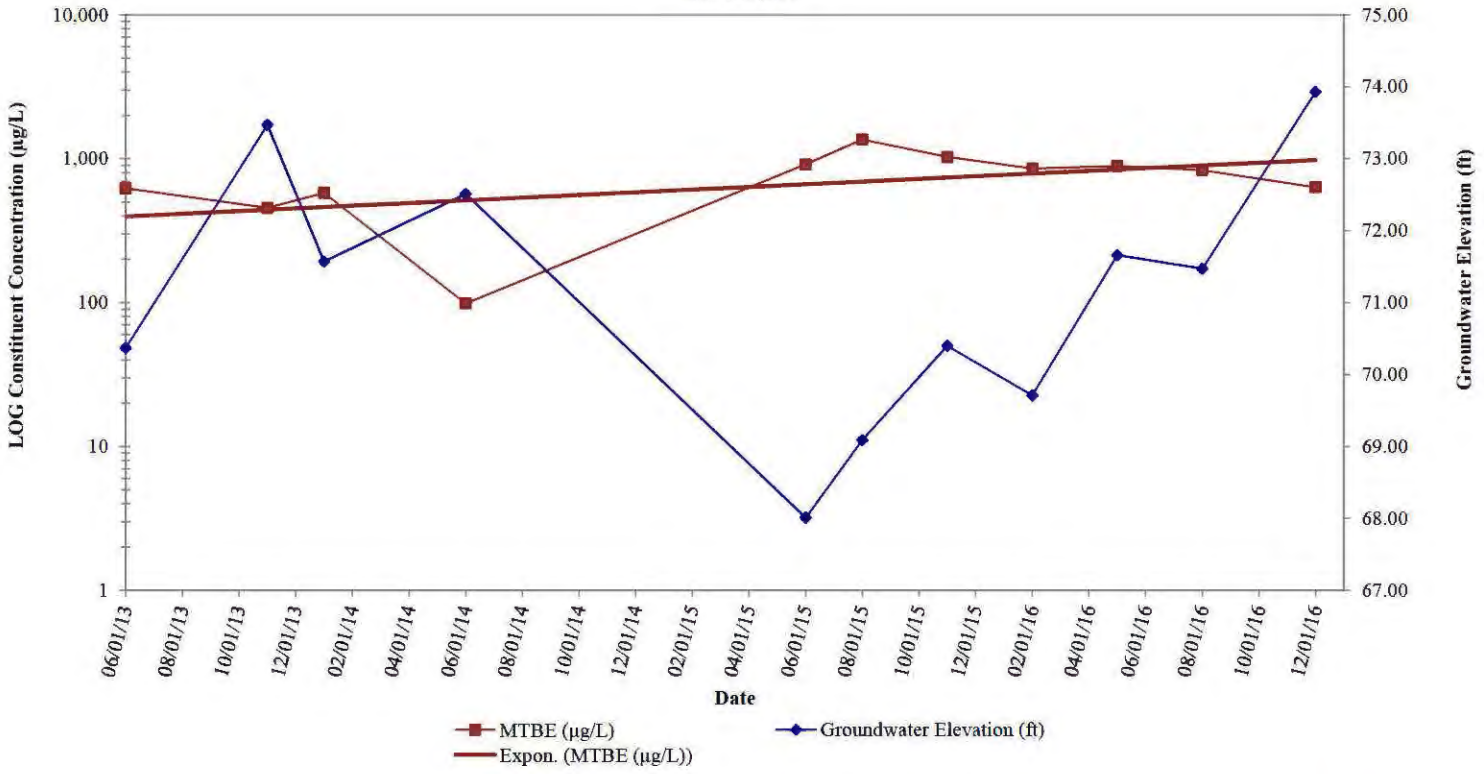


Note:
1. For graphing purposes, non-detect values are presented as 1/2 the laboratory reporting limit.

Figure 5H

DPH CONCENTRATION/GROUNDWATER ELEVATION TRENDLINE GRAPH
(MW-11)

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

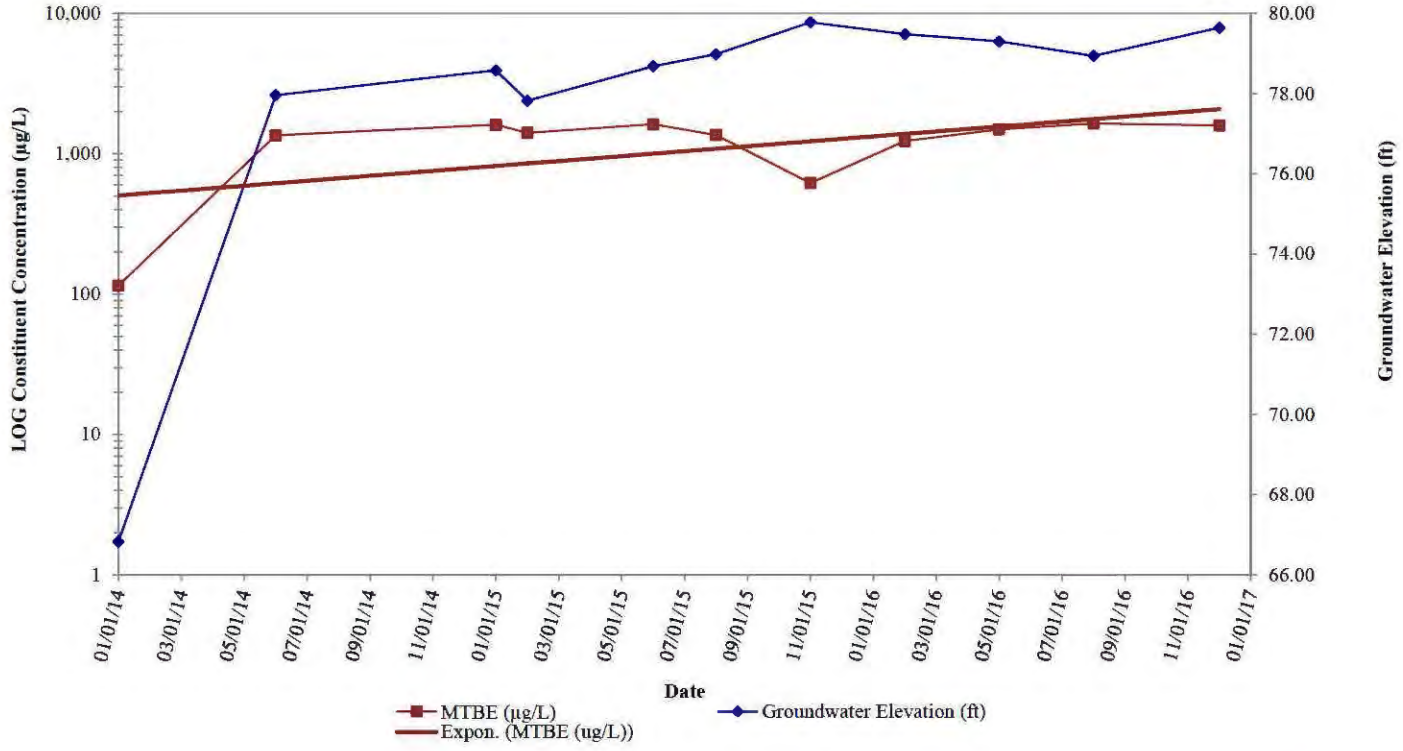


Note:
1. For graphing purposes, non-detect values are presented as 1/2 the laboratory reporting limit.

Figure 5I

DPH CONCENTRATION/GROUNDWATER ELEVATION TRENDLINE GRAPH
(MW-13)

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

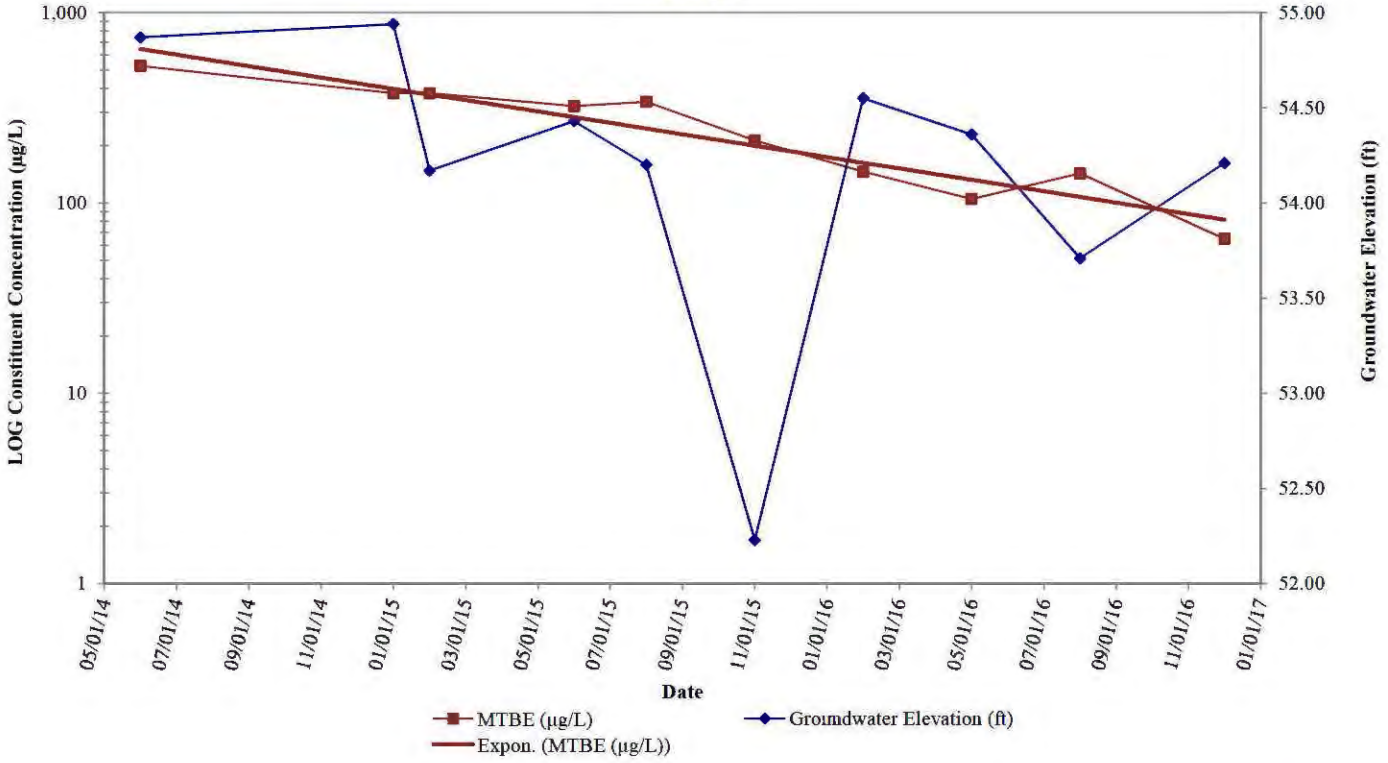


Note:
1. For graphing purposes, non-detect values are presented as 1/2 the laboratory reporting limit.

Figure 5J

DPH CONCENTRATION/GROUNDWATER ELEVATION TRENDLINE GRAPH
(MW-19)

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA



Note:
1. For graphing purposes, non-detect values are presented as 1/2 the laboratory reporting limit.

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Product Thickness	Adjusted Elevation	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Isopropylbenzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
				PA Act 2 U/R MSCs		5	1,000	700	10,000	20	840	100	15	420
MW-1R	06/12/13	100.00	6.29	0.00	93.71	**118**	14.7	13.8	186	5.5	< 5.0	10	**94.3**	35.8
	11/01/13	100.00	5.16	0.00	94.84	**820**	7.7	21.2	81.8	5.4	12.2	6.7	**40.1**	17.9
	01/09/14	100.00	6.46	0.00	93.54	**398**	5.3	13.2	36.3	7.3	10.3	13.4	**43.5**	14.9
	06/17/14	100.00	6.48	0.00	93.52	**261**	14.8	19.9	37.6	< 5.0	18.4	17.9	**130**	24.8
	01/06/15	100.00	6.29	0.00	93.71	**603**	8.6	13.5	33.8	< 5.0	15.9	5.4	**50.0**	15.3
	02/04/15	100.00	7.29	0.00	92.71	**678**	7.7	20.3	25.6	7.5	21.9	7.4	**53.2**	14.7
	06/18/15	100.00	6.45	0.00	93.55	**328**	< 5.0	9.1	5.2	< 5.0	8.1	< 5.0	**42.7**	< 5.0
	08/26/15	100.00	6.80	0.00	93.20	**659**	43.2	7.5	49.1	5.5	15.1	5.5	**44.2**	9.9
	11/04/15	100.00	6.61	0.00	93.39	**781**	33.5	10.2	92.6	< 5.0	12.3	5.9	**36.0**	13.9
	02/23/16	100.00	6.46	0.00	93.54	**426**	14.3	14.7	37.6	< 5.0	13.0	5.9	**28.4**	< 5.0
	05/11/16	100.00	6.71	0.00	93.29	**343 M1**	16.2	12.1	30.5	< 5.0	13.0	< 5.0	**21.9**	< 5.0
	08/04/16	100.00	6.93	0.00	93.07	**550**	107	15.1	65.8	7.5	15.0	6.0	**32.4**	10.3
	12/16/16	100.00	7.01	0.00	92.99	**605**	11.1	7.9	46.6	7.6	14.9	< 5.0	8.9	< 5.0
MW-3R	11/01/13	99.21	4.25	0.00	94.96	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	99.21	5.06	0.00	94.15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	99.21	4.34	0.00	94.87	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	7.3	< 5.0	< 5.0
	01/06/15	99.21	4.95	0.00	94.26	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.21	6.21	0.00	93.00	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	99.21	4.72	0.00	94.49	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	99.21	5.28	0.00	93.93	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	99.21	5.32	0.00	93.89	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	99.21	6.99	0.00	92.22	-	-	-	-	-	-	-	-	-
	05/11/16	99.21	5.54	0.00	93.67	< 5.0	6.1	< 5.0	< 3.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	99.21	5.82	0.00	93.39	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	99.21	NM	0.00	NA	-	-	-	-	-	-	-	-	-
MW-4	06/12/13	99.70	6.97	0.00	92.73	**190**	14.5	162	459	10.5	28.4	43.0	**203**	128
	11/01/13	99.70	5.84	0.00	93.86	**774**	12.6	28.1	82.1	< 5.0	13.8	11.0	**64.7**	18.2
	01/09/14	99.70	6.22	0.00	93.48	**422**	7.9	57.1	128	< 5.0	17.5	17.4	**179**	34.6
	06/17/14	99.70	6.17	0.00	93.53	**212**	9.2	25.8	24.5	< 5.0	15.6	7.9	**173**	17.0
	01/06/15	99.70	5.99	0.00	93.71	**542**	14.5	21.3	32.2	< 5.0	14.7	< 5.0	**127**	18.7
	02/03/15	99.70	NM	0.00	NA	-	-	-	-	-	-	-	-	-
	06/18/15	99.70	6.11	0.00	93.59	**235**	< 5.0	5.7	5.5	< 5.0	5.0	< 5.0	**19.1**	< 5.0
	08/26/15	99.70	6.50	0.00	93.20	**690**	78.5	12.7	75.8	< 5.0	10.5	< 5.0	**79.4**	11.5
	11/04/15	99.70	4.92	0.00	94.78	**611**	48.7	6.7	80.2	< 5.0	8.1	< 5.0	**26.4**	9.4
	02/23/16	99.70	6.12	0.00	93.58	**332**	24.8	9.8	46.2	< 5.0	6.6	< 5.0	**31.0**	5.9
	05/11/16	99.70	6.42	0.00	93.28	**302**	21.9	8.5	37.6	< 5.0	10.1	< 5.0	**26.2**	6.2
	08/04/16	99.70	6.15	0.00	93.55	**679**	124	11.6	84.7	< 5.0	9.7	< 5.0	**48.4**	14.5
	12/16/16	99.70	7.90	0.00	91.80	**514**	15.3	17.7	77.1	< 5.0	9.5	< 5.0	**42.9**	8.9

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Product Thickness	Adjusted Elevation	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Isopropylbenzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
				PA Act 2 U/R MSCs		5	1,000	700	10,000	20	840	100	15	420
MW-5	06/12/13	99.42	4.15	0.00	95.27	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	11/01/13	99.42	4.79	0.00	94.63	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	99.42	5.71	0.00	93.71	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	99.42	5.53	0.00	93.89	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.42	5.34	0.00	94.08	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.42	6.59	0.00	92.83	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	99.42	5.15	0.00	94.27	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	99.42	5.61	0.00	93.81	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	99.42	6.45	0.00	92.97	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	99.42	5.90	0.00	93.52	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	99.42	5.58	0.00	93.84	< 5.0	7.7	< 5.0	< 3.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	99.42	6.07	0.00	93.35	< 5.0	15.6	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	99.42	NM	0.00	NA	-	-	-	-	-	-	-	-	-
MW-6	06/12/13	99.67	5.99	0.00	93.68	**135**	76.0	22.6	104	12.4	7.0	38.2	**88.4**	43.8
	11/01/13	99.67	5.87	0.00	93.80	**561**	9.8	22.8	28.3	9.1	15.0	33.9	**25.6**	< 5.0
	01/09/14	99.67	6.18	0.00	93.49	**446**	6.5	17.5	15.7	6.8	16.7	11.8	**15.5**	< 5.0
	06/17/14	99.67	6.19	0.00	93.48	**201**	8.7	24.5	15.8	7.8	15.0	11.7	**22.8**	< 5.0
	01/06/15	99.67	5.98	0.00	93.69	**647**	6.3	11.0	19.8	5.9	15.0	9.1	8.5	< 5.0
	02/03/15	99.67	6.99	0.00	92.68	**680**	8.1	11.2	18.0	5.7	15.8	< 5.0	< 5.0	< 5.0
	06/18/15	99.67	6.11	0.00	93.56	**331**	15.6	19.2	24.3	5.3	9.5	6.6	11.2	< 5.0
	08/26/15	99.67	6.48	0.00	93.19	**75.6**	< 5.0	< 5.0	< 5.0	15.9	< 5.0	11.0	< 5.0	< 5.0
	11/04/15	99.67	6.35	0.00	93.32	**539**	21.3	6.3	37.7	< 5.0	< 5.0	9.7	11.7	< 5.0
	02/23/16	99.67	6.25	0.00	93.42	**446**	10.1	5.3	19.4	5.0	9.3	< 5.0	5.3	< 5.0
	05/11/16	99.67	6.56	0.00	93.11	**313**	15.8	11.2	36.5	< 5.0	11.4	< 5.0	10	< 5.0
	08/04/16	99.67	6.36	0.00	93.31	**429**	14.9	< 5.0	20.6	< 5.0	11.5	< 5.0	< 5.0	< 5.0
	12/16/16	99.67	7.33	0.00	92.34	**578**	21.6	26.3	126	< 5.0	15.3	8.6	**57.6**	18.5
MW-7	11/01/13	99.77	6.75	0.00	93.02	**135**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	99.77	6.92	0.00	92.85	**44.6**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	99.77	6.91	0.00	92.86	**49.4**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.77	7.25	0.00	92.52	**12.5**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.77	8.95	0.00	90.82	**79.9**	< 5.0	68.2	254	< 5.0	5.1	9.2	**67.5**	17.0
	06/18/15	99.77	7.11	0.00	92.66	**99.5**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	99.77	8.57	0.00	91.20	**27.1**	< 5.0	17.4	42.7	< 5.0	< 5.0	< 5.0	**23.0**	< 5.0
	11/04/15	99.77	8.32	0.00	91.45	**112**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	99.77	8.32	0.00	91.45	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	99.77	8.28	0.00	91.49	**56.7**	< 5.0	< 5.0	< 3.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	99.77	8.00	0.00	91.77	**16.5**	< 5.0	19.7	61.3	< 5.0	< 5.0	6.1	**41.7**	9.1
	12/16/16	99.77	11.60	0.00	88.17	**263**	< 5.0	60.4	142	10.7	36.2	13.4	**147**	32.7
MW-8	11/01/13	89.76	13.95	0.00	75.81	< 5.0	< 5.0	< 5.0	< 5.0	**626**	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	89.76	11.43	0.00	78.33	< 5.0	< 5.0	< 5.0	< 5.0	**406**	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	89.76	11.17	0.00	78.59	< 5.0	< 5.0	< 5.0	< 5.0	**289**	< 5.0	< 5.0	< 5.0	< 5.0

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Product Thickness	Adjusted Elevation	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Isopropylbenzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
				PA Act 2 U/R MSCs		5	1,000	700	10,000	20	840	100	15	420
MW-8 (cont)	01/06/15	89.76	11.88	0.00	77.88	< 5.0	< 5.0	< 5.0	< 5.0	173	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	89.76	11.71	0.00	78.05	< 5.0	< 5.0	< 5.0	< 5.0	155	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	89.76	12.67	0.00	77.09	< 5.0	< 5.0	< 5.0	< 5.0	147	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	89.76	12.78	0.00	76.98	< 5.0	< 5.0	< 5.0	< 5.0	129	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	89.76	12.99	0.00	76.77	< 5.0	< 5.0	< 5.0	< 5.0	101	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	89.76	12.21	0.00	77.55	< 5.0	< 5.0	< 5.0	< 5.0	49.2	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	89.76	11.79	0.00	77.97	< 5.0	< 5.0	< 5.0	< 3.0	41.8	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	89.76	12.52	0.00	77.24	< 5.0	< 5.0	< 5.0	< 5.0	38.4	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	89.76	12.79	0.00	76.97	< 5.0	< 5.0	< 5.0	< 5.0	24.5	< 5.0	< 5.0	< 5.0	< 5.0
MW-9	11/01/13	89.99	22.95	0.00	67.04	< 5.0	< 5.0	< 5.0	< 5.0	2,310	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	89.99	21.27	0.00	68.72	< 5.0	< 5.0	< 5.0	< 5.0	3,330	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	89.99	15.77	0.00	74.22	< 5.0	< 5.0	< 5.0	< 5.0	2,870	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	89.99	13.38	0.00	76.61	< 5.0	< 5.0	< 5.0	< 5.0	2,330	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	89.99	10.72	0.00	79.27	< 5.0	< 5.0	< 5.0	< 5.0	1,230	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	89.99	9.55	0.00	80.44	< 5.0	< 5.0	< 5.0	< 5.0	1,260	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	89.99	10.59	0.00	79.40	< 5.0	< 5.0	< 5.0	< 5.0	1,500	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	89.99	6.59	0.00	83.40	< 5.0	< 5.0	< 5.0	< 5.0	314	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	89.99	6.81	0.00	83.18	7.3	< 5.0	< 5.0	< 5.0	319	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	89.99	7.09	0.00	82.90	8.9	< 5.0	< 5.0	< 3.0	253	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	89.99	8.04	0.00	81.95	14.8	< 5.0	< 5.0	< 5.0	364	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	89.99	7.67	0.00	82.32	< 5.0	< 5.0	< 5.0	< 5.0	267	< 5.0	< 5.0	< 5.0	< 5.0
MW-10	01/09/14	88.76	22.91	0.00	65.85	< 5.0	< 5.0	< 5.0	< 5.0	27.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	88.76	21.41	0.00	67.35	< 5.0	< 5.0	< 5.0	< 5.0	392	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	88.76	21.83	0.00	66.93	< 5.0	< 5.0	< 5.0	< 5.0	396	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	88.76	22.16	0.00	66.60	< 5.0	< 5.0	< 5.0	< 5.0	287	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	88.76	21.45	0.00	67.31	< 5.0	< 5.0	< 5.0	< 5.0	344	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	88.76	21.52	0.00	67.24	< 5.0	< 5.0	< 5.0	< 5.0	352	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	88.76	13.69	0.00	75.07	< 5.0	< 5.0	< 5.0	< 5.0	175	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	88.76	10.35	0.00	78.41	< 5.0	< 5.0	< 5.0	< 5.0	15.3	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	88.76	10.22	0.00	78.54	16.9	< 5.0	< 5.0	< 3.0	108	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	88.76	10.98	0.00	77.78	46.2	< 5.0	< 5.0	< 5.0	110	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	88.76	10.85	0.00	77.91	< 5.0	< 5.0	< 5.0	< 5.0	97.6	< 5.0	< 5.0	< 5.0	< 5.0
MW-11	01/09/14	87.28	19.27	0.00	68.01	< 5.0	< 5.0	< 5.0	< 5.0	914	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	87.28	18.19	0.00	69.09	8.6	< 5.0	5.3	< 5.0	1,360	< 5.0	< 5.0	< 5.0	5.0
	01/06/15	87.28	16.88	0.00	70.40	8.1	< 5.0	< 5.0	< 5.0	1,030	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	87.28	17.57	0.00	69.71	< 5.0	< 5.0	< 5.0	< 5.0	854	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	87.28	15.62	0.00	71.66	6.6	< 5.0	< 5.0	< 5.0	891	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	87.28	15.81	0.00	71.47	< 5.0	< 5.0	< 5.0	< 5.0	832	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	87.28	13.35	0.00	73.93	< 5.0	< 5.0	< 5.0	< 5.0	633	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	87.28	16.91	0.00	70.37	< 5.0	< 5.0	< 5.0	< 5.0	623	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	87.28	13.81	0.00	73.47	< 5.0	< 5.0	< 5.0	< 3.0	455	< 5.0	< 5.0	< 5.0	< 5.0

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Product Thickness	Adjusted Elevation	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Isopropylbenzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
				PA Act 2 U/R MSCs		5	1,000	700	10,000	20	840	100	15	420
MW-11	08/04/16	87.28	15.71	0.00	71.57	< 5.0	< 5.0	< 5.0	< 5.0	**578**	< 5.0	< 5.0	< 5.0	< 5.0
(cont)	12/16/16	87.28	14.77	0.00	72.51	< 5.0	< 5.0	< 5.0	< 5.0	**98.6**	< 5.0	< 5.0	< 5.0	< 5.0
MW-12	01/09/14	99.30	5.46	0.00	93.84	< 5.0	48.8	18.3	126	< 5.0	< 5.0	< 5.0	**36.6**	< 5.0
	06/17/14	99.30	5.41	0.00	93.89	< 5.0	< 5.0	< 5.0	5.1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.30	5.74	0.00	93.56	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.30	8.51	0.00	90.79	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	99.30	6.15	0.00	93.15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	99.30	5.92	0.00	93.38	< 5.0	< 5.0	< 5.0	7.1	< 5.0	< 5.0	< 5.0	7.8	5.2
	11/04/15	99.30	5.79	0.00	93.51	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	99.30	6.35	0.00	92.95	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	99.30	6.54	0.00	92.76	< 5.0	< 5.0	< 5.0	< 3.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	99.30	6.65	0.00	92.65	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	99.30	6.65	0.00	92.65	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-13	01/09/14	99.83	33.00	0.00	66.83	< 5.0	< 5.0	< 5.0	< 5.0	**115**	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	99.83	21.87	0.00	77.96	< 5.0	< 5.0	< 5.0	< 5.0	**1,350**	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.83	21.25	0.00	78.58	< 5.0	< 5.0	< 5.0	< 5.0	**1,610**	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	99.83	22.01	0.00	77.82	< 5.0	< 5.0	< 5.0	< 5.0	**1,410**	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	99.83	21.15	0.00	78.68	< 5.0	< 5.0	< 5.0	< 5.0	**1,620**	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	99.83	20.85	0.00	78.98	< 5.0	< 5.0	< 5.0	< 5.0	**1,360**	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	99.83	20.05	0.00	79.78	< 5.0	< 5.0	< 5.0	< 5.0	**618**	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	99.83	20.35	0.00	79.48	< 5.0	< 5.0	< 5.0	< 5.0	**1,230**	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	99.83	20.53	0.00	79.30	< 5.0	6.4	< 5.0	< 3.0	**1,490**	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	99.83	20.89	0.00	78.94	< 5.0	5.1	< 5.0	< 5.0	**1,640**	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	99.83	20.19	0.00	79.64	< 5.0	< 5.0	< 5.0	< 5.0	**1,590**	< 5.0	< 5.0	< 5.0	< 5.0
MW-14	01/09/14	100.12	7.01	0.00	93.11	**511**	15.7	77.2	712	11.7	23.1	33.3	**233**	94.5
	06/17/14	100.12	6.65	0.00	93.47	**274**	13.0	33.8	66.1	6.0	7.4	10.1	**41.5**	20.6
	01/06/15	100.12	6.63	0.00	93.49	**543**	8.5	29.9	72.9	5.2	12.8	6.3	**32.4**	15.5
	02/03/15	100.12	8.62	0.00	91.50	**706**	10.5	112	387	19.0	13.6	25.5	**119**	46.5
	06/18/15	100.12	6.36	0.00	93.76	**390**	25.6	10.1	22.6	< 5.0	< 5.0	< 5.0	6.8	< 5.0
	08/26/15	100.12	7.52	0.00	92.60	**765**	8.5	58.0	261	**20.4**	12.7	12.0	**67.1**	23.6
	11/04/15	100.12	6.64	0.00	93.48	**732**	16.8	9.8	37.8	5.3	8.1	< 5.0	10.7	< 5.0
	02/23/16	100.12	6.59	0.00	93.53	**408**	14.3	11.7	37.5	< 5.0	7.4	< 5.0	13.6	< 5.0
	05/11/16	100.12	7.18	0.00	92.94	**311**	14.6	17.6	55.5	< 10.0	8.6	< 5.0	**26.1**	5.8
	08/04/16	100.12	9.76	0.00	90.36	**593**	13.8	17.5	135	15.3	10.0	10	**57.9**	16.7
	12/16/16	100.12	NM	0.00	NA	-	-	-	-	-	-	-	-	-
MW-15	06/17/14	99.57	7.15	0.00	92.42	**12.5**	6.8	< 5.0	7.4	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.57	6.85	0.00	92.72	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.57	7.11	0.00	92.46	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	99.57	7.31	0.00	92.26	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	99.57	7.18	0.00	92.39	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	99.57	6.99	0.00	92.58	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Product Thickness	Adjusted Elevation	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Isopropylbenzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
				PA Act 2 U/R MSCs		5	1,000	700	10,000	20	840	100	15	420
MW-15 (cont)	02/23/16	99.57	6.81	0.00	92.76	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	99.57	7.15	0.00	92.42	< 5.0	< 5.0	< 5.0	< 3.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	99.57	7.42	0.00	92.15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	99.57	NM	0.00	NA	-	-	-	-	-	-	-	-	-
MW-16	06/17/14	98.60	DRY	0.00	NA	-	-	-	-	-	-	-	-	-
	01/06/15	98.60	14.75	0.00	83.85	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	98.60	13.50	0.00	85.10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	98.60	13.26	0.00	85.34	< 5.0	< 5.0M1	< 5.0	< 5.0	< 5.0M1	< 5.0M1	< 5.0M1	< 5.0M1	< 5.0M1
	08/26/15	98.60	13.22	0.00	85.38	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	98.60	13.15	0.00	85.45	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	98.60	13.63	0.00	84.97	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	98.60	13.82	0.00	84.78	< 5.0	< 5.0	< 5.0	< 3.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	98.60	13.53	0.00	85.07	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	98.60	13.20	0.00	85.40	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-17	06/17/14	77.95	8.87	0.00	69.08	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	77.95	9.37	0.00	68.58	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0M1	< 5.0	< 5.0
	02/03/15	77.95	10.12	0.00	67.83	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	77.95	10.51	0.00	67.44	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	77.95	9.66	0.00	68.29	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	77.95	10.89	0.00	67.06	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	77.95	10.67	0.00	67.28	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	77.95	10.16	0.00	67.79	< 5.0	< 5.0	< 5.0	< 3.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	77.95	10.85	0.00	67.10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	77.95	10.65	0.00	67.30	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-18	06/17/14	76.65	21.82	0.00	54.83	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	76.65	21.70	0.00	54.95	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	76.65	22.51	0.00	54.14	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	76.65	22.21	0.00	54.44	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	76.65	22.43	0.00	54.22	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	76.65	22.25	0.00	54.40	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	76.65	22.21	0.00	54.44	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	76.65	22.13	0.00	54.52	< 5.0	< 5.0	< 5.0	< 3.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	76.65	23.01	0.00	53.64	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	76.65	22.46	0.00	54.19	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-19	06/17/14	75.36	20.49	0.00	54.87	< 5.0	< 5.0	< 5.0	< 5.0	**525**	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	75.36	20.42	0.00	54.94	< 5.0	< 5.0	< 5.0	< 5.0	**377**	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	75.36	21.19	0.00	54.17	< 5.0	< 5.0	< 5.0	< 5.0	**377**	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	75.36	20.93	0.00	54.43	< 5.0	< 5.0	< 5.0	< 5.0	**323**	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	75.36	21.16	0.00	54.20	< 5.0	< 5.0	< 5.0	< 5.0	**340**	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	75.36	23.13	0.00	52.23	< 5.0	< 5.0	< 5.0	< 5.0	**213**	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	75.36	20.81	0.00	54.55	< 5.0	< 5.0	< 5.0	< 5.0	**146**	< 5.0	< 5.0	< 5.0	< 5.0

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Product Thickness	Adjusted Elevation	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Isopropylbenzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
				PA Act 2 U/R MSCs		5	1,000	700	10,000	20	840	100	15	420
MW-19 (cont)	05/11/16	75.36	21.00	0.00	54.36	< 5.0	< 5.0	< 5.0	< 3.0	**105**	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	75.36	21.65	0.00	53.71	< 5.0	< 5.0	< 5.0	< 5.0	**143**	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	75.36	21.15	0.00	54.21	< 5.0	< 5.0	< 5.0	< 5.0	**64.8**	< 5.0	< 5.0	< 5.0	< 5.0
MW-20	01/06/15	66.78	12.42	0.00	54.36	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	66.78	12.99	0.00	53.79	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	66.78	12.51	0.00	54.27	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	66.78	13.37	0.00	53.41	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	66.78	12.75	0.00	54.03	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	66.78	12.71	0.00	54.07	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	66.78	13.17	0.00	53.61	< 5.0	< 5.0	< 5.0	< 3.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	66.78	12.95	0.00	53.83	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	66.78	12.42	0.00	54.36	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-21	01/06/15	86.70	10.97	0.00	75.73	< 5.0	< 5.0	< 5.0	< 5.0	**27.0**	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	86.70	11.61	0.00	75.09	< 5.0	< 5.0	< 5.0	< 5.0	**20.5**	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	86.70	11.15	0.00	75.55	< 5.0	< 5.0	< 5.0	< 5.0	14.6	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	86.70	12.51	0.00	74.19	< 5.0	< 5.0	< 5.0	< 5.0	**23.2**	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	86.70	11.11	0.00	75.59	< 5.0	< 5.0	< 5.0	< 5.0	7.7	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	86.70	10.55	0.00	76.15	< 5.0	< 5.0	< 5.0	< 5.0	16.7	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	86.70	10.45	0.00	76.25	< 5.0	< 5.0	< 5.0	< 3.0	19.8	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	86.70	10.91	0.00	75.79	< 5.0	< 5.0	< 5.0	< 5.0	**22.2**	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	86.70	10.11	0.00	76.59	< 5.0	< 5.0	< 5.0	< 5.0	10.8	< 5.0	< 5.0	< 5.0	< 5.0
MW-22	01/06/15	99.22	33.21	0.00	66.01	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.22	19.41	0.00	79.81	< 5.0	< 5.0	< 5.0	< 5.0	12.9	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	99.22	8.41	0.00	90.81	< 5.0	< 5.0	< 5.0	< 5.0	15.1	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	99.22	14.33	0.00	84.89	< 5.0	< 5.0	< 5.0	< 5.0	14.1	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	99.22	18.25	0.00	80.97	< 5.0	< 5.0	< 5.0	< 5.0	8.4	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	99.22	7.67	0.00	91.55	< 5.0	< 5.0	< 5.0	< 5.0	9.6	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	99.22	8.25	0.00	90.97	< 5.0	< 5.0	< 5.0	< 3.0	9.2	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	99.22	7.71	0.00	91.51	< 5.0	< 5.0	< 5.0	< 5.0	7.9	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	99.22	NM	0.00	NA	-	-	-	-	-	-	-	-	-
MW-23	01/06/15	98.70	30.02	0.00	68.68	< 5.0	< 5.0	< 5.0	< 5.0	**49.2**	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	98.70	30.95	0.00	67.75	< 5.0	< 5.0	< 5.0	< 5.0	**46.7**	< 5.0	< 5.0	< 5.0	< 5.0
	06/18/15	98.70	29.79	0.00	68.91	< 5.0	< 5.0	< 5.0	< 5.0	**42.0**	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	98.70	29.77	0.00	68.93	< 5.0	< 5.0	< 5.0	< 5.0	**32.8**	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	98.70	30.15	0.00	68.55	< 5.0	< 5.0	< 5.0	< 5.0	14.4	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	98.70	30.31	0.00	68.39	< 5.0	< 5.0	< 5.0	< 5.0	14.0	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	98.70	28.50	0.00	70.20	< 5.0	< 5.0	< 5.0	< 3.0	19.1	< 5.0	< 5.0	< 5.0	< 5.0
	08/04/16	98.70	32.20	0.00	66.50	< 5.0	< 5.0	< 5.0	< 5.0	12.5	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	98.70	29.88	0.00	68.82	< 5.0	< 5.0	< 5.0	< 5.0	13.9	< 5.0	< 5.0	< 5.0	< 5.0
MW-24	01/06/15	71.62	16.89	0.00	54.73	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	71.62	12.19	0.00	59.43	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Product Thickness	Adjusted Elevation	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Isopropylbenzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
				PA Act 2 U/R MSCs		5	1,000	700	10,000	20	840	100	15	420
MW-24 (cont)	06/18/15	71.62	17.54	0.00	54.08	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	08/26/15	71.62	17.79	0.00	53.83	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	11/04/15	71.62	12.75	0.00	58.87	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/23/16	71.62	17.51	0.00	54.11	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	05/11/16	71.62	NM	0.00	NA	-	-	-	-	-	-	-	-	-
	08/04/16	71.62	18.29	0.00	53.33	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	12/16/16	71.62	17.68	0.00	53.94	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
RW-1	08/04/16	NM	6.45	0.00	NA	**361**	< 5.0	6.2	10.1	14.3	6.3	< 5.0	14.6	< 5.0
	12/16/16	99.12	6.48	0.00	92.64	**233**	< 5.0	37.6	164	5.3	< 5.0	< 5.0	**40.6**	8.3
RW-2	08/04/16	NM	8.16	0.00	NA	**348**	< 5.0	506	1,200	**149**	35.6	**134**	**901**	397
	12/16/16	99.18	11.69	0.00	87.49	**177**	< 5.0	186	70.1	**123**	24.3	63.2	**83.6**	147
RW-3	08/04/16	NM	6.76	0.00	NA	**62.7**	58.0	131	1,000	< 5.0	6.2	27.8	**181**	68.4
	12/16/16	98.56	11.80	0.00	86.76	**141**	256	239	6,280	< 5.0	18.9	**215**	**1,410**	**560**

NOTES

All laboratory data and U/R MSCs are reported in micrograms per liter.
Elevation and depth to water measurements are recorded in feet.
U/R MSC = Used Aquifer/Residential Medium-Specific Concentration
BOLD = Indicates exceedance of applicable Act 2 MSC
<# = Less than laboratory reporting limit of #
DRY = Insufficient water for sampling
MTBE = Methyl tert-butyl ether
TMB = Trimethylbenzene
NA = Not available
NM = Not measured
- = Sample not collected
Laboratory analytical data qualifiers are reference above, following the analytical result. Refer to laboratory report appendices for qualifier descriptions.

Table 2

WELL CONSTRUCTION SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date Installed	Current Top of Casing Elevation[1] (feet)	Well Diameter (inches)	Total Depth (feet)	Total PVC Screen Length (feet)	Total PVC Riser Length (feet)
Perched Groundwater Zone						
MW-1R	06/06/13	100.00	4	16	13	3
MW-3R	10/09/13	99.21	4	8	6	2
MW-4	06/05/13	99.70	4	15	12	3
MW-5	06/05/13	99.42	4	12	10	2
MW-6	06/05/13	99.67	4	11.75	9	2.75
MW-7	10/09/13	99.77	4	16	13	3
MW-12	12/12/13	99.30	4	16	13	3
MW-14	12/12/13	100.12	4	16	13	3
MW-15	06/05/14	99.57	4	9.50	6	3.50
MW-16	06/05/14	98.60	4	16	12	4
RW-1	04/01/16	NA	4	16	11	5
RW-2	04/01/16	NA	4	16	11	5
RW-3	04/01/16	NA	4	16	11	5
Overburden Aquifer						
MW-8	10/11/13	89.76	2	19.75	14.75	5
MW-9	10/10/13	89.99	2	30	20	10
MW-10	12/17/13	88.76	2	30	20	10
MW-11	12/12/13	87.28	2	30	20	10
MW-13	12/18/13	99.83	4	35	12	23
MW-17	06/04/14	77.95	4	22	15	7
MW-18	06/03/14	76.65	4	30	20	10
MW-19	06/04/14	75.36	4	30	20	10
MW-20	12/09/14	66.78	4	23	15	8
MW-21	12/11/14	86.70	4	25	18	7
MW-22	12/16/14	99.22	4	34	12	22
MW-23	12/12/14	98.70	4	34.5	12.5	22
MW-24	12/09/14	71.62	4	27	20	7

NOTES:
PVC - poly-vinyl chloride
NA - Not Available
1) Top of casing elevations relative to an on-site benchmark.

Table 3

HYDROCARBON RECOVERY DATA

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

DATE	Dissolved-Phase Hydrocarbon Recovery						Vapor-Phase Hydrocarbon Recovery				
	Run Time (Hours)	Volume Recovered to Date (gallons)	Average Flow Rate (gallons per minute)	Influent DPH Concentration (µg/L)	DPH Recovery (pounds)	DPH Recovery to Date (pounds)	Run Time (Hours)	Vapor Flow Rate (cfm)	Influent Hydrocarbons (ppmv)	Daily Hydrocarbon Recovery (lb/day)	Vapor-Phase Recovery to Date (pounds)
12/06/16	0	353	0.00	--	--	0.000	SVE Not Activated				
12/07/16	24	568	0.39	1,421.70	0.001	0.001	SVE Not Activated				
12/15/16	192	1,649	0.14	--	--	0.001	SVE Not Activated				
Total Hours	216	**Average Flow Rate**	0.13		**DPH Recovery to Date**	0.001				**VPH Recovery To Date**	0.00
										Total Hydrocarbon Recovery To Date (Dissolved Phase and Vapor Phase)	0.001

NOTES

Dissolved phase hydrocarbon (DPH) concentration includes BTEX, MTBE, isopropylbenzne, naphthalene, 1,2,4-TMB and 1,3,5-TMB.

The cumulative total DPH recovered to date is determined from adding the amount of hydrocarbons recovered since the previous monitoring event to the previous total amount (lbs).

DPH recovery (lb) = $\frac{\text{conc. (µg/L)}}{\text{gallon}} \times \frac{\text{3.785 liters}}{\text{10^9 µg}} \times \frac{\text{2.205 lb}}{\text{\# gallons}}$

Vapor concentration as µg/L = $\frac{\text{ppm}}{\text{24.05 L/mol}} \times \text{molecular weight}$ (assume C_4-C_{10} molecular weight=100)

VPH loading (lb/day)= $\frac{\text{conc. (µg/liter)}}{\text{ft^3}} \times \frac{\text{flow rate (cfm)}}{\text{10^6 µg}} \times \frac{\text{28.33 L}}{\text{gram}} \times \frac{\text{1 gram}}{\text{day}} \times \frac{\text{0.002205 lb}}{\text{1440 min.}}$

Table 4

REMEDIATION SYSTEM SAMPLING RESULTS: WATER

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Sample Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	Isopropylbenzene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)
Influent	11/04/16	367	339	265	1,550	1.8	61.9	16.2	367	110
	12/07/16	67.6	173	76.2	814	3.9	28.8	2.6	182	73.6
Effluent	11/04/16	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0
	11/17/16	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/26/16	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

NOTES

MTBE	methyl tert-butyl ether	<#	less than laboratory reporting limit of #
TMB	trimethylbenzene	NA	Not available
µg/L	micrograms/liter		
mg/L	milligrams/liter		

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

January 04, 2017

Mr. Joe Hinkle
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: UPA Bradford M-061
Pace Project No.: 30206016

Dear Mr. Hinkle:
Enclosed are the analytical results for sample(s) received by the laboratory on December 19, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rachel D Christner

Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental Services, Inc.
Lauren Bidwell, Groundwater & Environmental Services, Inc.
Mr. Justin Paul, Groundwater & Environmental Sesrvices, Inc.

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-1R **Lab ID: 30206016001** Collected: 12/16/16 16:10 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**605**	ug/L	100	20		12/21/16 17:09	71-43-2	M5
Ethylbenzene	**7.9**	ug/L	5.0	1		12/21/16 16:42	100-41-4	M5
Isopropylbenzene (Cumene)	**14.9**	ug/L	5.0	1		12/21/16 16:42	98-82-8	M5
Methyl-tert-butyl ether	**7.6**	ug/L	5.0	1		12/21/16 16:42	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/21/16 16:42	91-20-3	M5
Toluene	**11.1**	ug/L	5.0	1		12/21/16 16:42	108-88-3	M5
1,2,4-Trimethylbenzene	**8.9**	ug/L	5.0	1		12/21/16 16:42	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 16:42	108-67-8	M5
Xylene (Total)	**46.6**	ug/L	5.0	1		12/21/16 16:42	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	99	%	84-115	1		12/21/16 16:42	2037-26-5	M5
4-Bromofluorobenzene (S)	103	%	81-119	1		12/21/16 16:42	460-00-4	M5
1,2-Dichloroethane-d4 (S)	106	%	77-126	1		12/21/16 16:42	17060-07-0	M5
Dibromofluoromethane (S)	88	%	70-130	1		12/21/16 16:42	1868-53-7	M5

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-4 **Lab ID: 30206016002** Collected: 12/16/16 16:25 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**514**	ug/L	100	20		12/21/16 18:02	71-43-2	M5
Ethylbenzene	**17.7**	ug/L	5.0	1		12/21/16 17:35	100-41-4	M5
Isopropylbenzene (Cumene)	**9.5**	ug/L	5.0	1		12/21/16 17:35	98-82-8	M5
Methyl-tert-butyl ether	ND	ug/L	5.0	1		12/21/16 17:35	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/21/16 17:35	91-20-3	M5
Toluene	**15.3**	ug/L	5.0	1		12/21/16 17:35	108-88-3	M5
1,2,4-Trimethylbenzene	**42.9**	ug/L	5.0	1		12/21/16 17:35	95-63-6	M5
1,3,5-Trimethylbenzene	**8.9**	ug/L	5.0	1		12/21/16 17:35	108-67-8	M5
Xylene (Total)	**77.1**	ug/L	5.0	1		12/21/16 17:35	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	100	%	84-115	1		12/21/16 17:35	2037-26-5	M5
4-Bromofluorobenzene (S)	103	%	81-119	1		12/21/16 17:35	460-00-4	M5
1,2-Dichloroethane-d4 (S)	101	%	77-126	1		12/21/16 17:35	17060-07-0	M5
Dibromofluoromethane (S)	86	%	70-130	1		12/21/16 17:35	1868-53-7	M5

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-6 **Lab ID: 30206016003** Collected: 12/16/16 14:40 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**578**	ug/L	100	20		12/21/16 18:55	71-43-2	M5
Ethylbenzene	**26.3**	ug/L	5.0	1		12/21/16 18:29	100-41-4	M5
Isopropylbenzene (Cumene)	**15.3**	ug/L	5.0	1		12/21/16 18:29	98-82-8	M5
Methyl-tert-butyl ether	ND	ug/L	5.0	1		12/21/16 18:29	1634-04-4	M5
Naphthalene	**8.6**	ug/L	5.0	1		12/21/16 18:29	91-20-3	M5
Toluene	**21.6**	ug/L	5.0	1		12/21/16 18:29	108-88-3	M5
1,2,4-Trimethylbenzene	**57.6**	ug/L	5.0	1		12/21/16 18:29	95-63-6	M5
1,3,5-Trimethylbenzene	**18.5**	ug/L	5.0	1		12/21/16 18:29	108-67-8	M5
Xylene (Total)	**126**	ug/L	5.0	1		12/21/16 18:29	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	100	%	84-115	1		12/21/16 18:29	2037-26-5	M5
4-Bromofluorobenzene (S)	99	%	81-119	1		12/21/16 18:29	460-00-4	M5
1,2-Dichloroethane-d4 (S)	101	%	77-126	1		12/21/16 18:29	17060-07-0	M5
Dibromofluoromethane (S)	92	%	70-130	1		12/21/16 18:29	1868-53-7	M5

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-7 **Lab ID: 30206016004** Collected: 12/16/16 15:40 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**263**	ug/L	5.0	1		12/21/16 19:22	71-43-2	M5
Ethylbenzene	**60.4**	ug/L	5.0	1		12/21/16 19:22	100-41-4	M5
Isopropylbenzene (Cumene)	**36.2**	ug/L	5.0	1		12/21/16 19:22	98-82-8	M5
Methyl-tert-butyl ether	**10.7**	ug/L	5.0	1		12/21/16 19:22	1634-04-4	M5
Naphthalene	**13.4**	ug/L	5.0	1		12/21/16 19:22	91-20-3	M5
Toluene	ND	ug/L	5.0	1		12/21/16 19:22	108-88-3	M5
1,2,4-Trimethylbenzene	**147**	ug/L	5.0	1		12/21/16 19:22	95-63-6	M5
1,3,5-Trimethylbenzene	**32.7**	ug/L	5.0	1		12/21/16 19:22	108-67-8	M5
Xylene (Total)	**142**	ug/L	5.0	1		12/21/16 19:22	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	97	%	84-115	1		12/21/16 19:22	2037-26-5	M5
4-Bromofluorobenzene (S)	102	%	81-119	1		12/21/16 19:22	460-00-4	M5
1,2-Dichloroethane-d4 (S)	103	%	77-126	1		12/21/16 19:22	17060-07-0	M5
Dibromofluoromethane (S)	95	%	70-130	1		12/21/16 19:22	1868-53-7	M5

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-8 **Lab ID: 30206016005** Collected: 12/16/16 13:40 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/21/16 19:49	71-43-2	M5
Ethylbenzene	ND	ug/L	5.0	1		12/21/16 19:49	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/21/16 19:49	98-82-8	M5
Methyl-tert-butyl ether	24.5	ug/L	5.0	1		12/21/16 19:49	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/21/16 19:49	91-20-3	M5
Toluene	ND	ug/L	5.0	1		12/21/16 19:49	108-88-3	M5
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 19:49	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 19:49	108-67-8	M5
Xylene (Total)	ND	ug/L	5.0	1		12/21/16 19:49	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	97	%	84-115	1		12/21/16 19:49	2037-26-5	M5
4-Bromofluorobenzene (S)	98	%	81-119	1		12/21/16 19:49	460-00-4	M5
1,2-Dichloroethane-d4 (S)	100	%	77-126	1		12/21/16 19:49	17060-07-0	M5
Dibromofluoromethane (S)	97	%	70-130	1		12/21/16 19:49	1868-53-7	M5

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-9 **Lab ID: 30206016006** Collected: 12/16/16 13:30 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/21/16 20:15	71-43-2	M5
Ethylbenzene	ND	ug/L	5.0	1		12/21/16 20:15	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/21/16 20:15	98-82-8	M5
Methyl-tert-butyl ether	**267**	ug/L	5.0	1		12/21/16 20:15	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/21/16 20:15	91-20-3	M5
Toluene	ND	ug/L	5.0	1		12/21/16 20:15	108-88-3	M5
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 20:15	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 20:15	108-67-8	M5
Xylene (Total)	ND	ug/L	5.0	1		12/21/16 20:15	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	98	%	84-115	1		12/21/16 20:15	2037-26-5	M5
4-Bromofluorobenzene (S)	99	%	81-119	1		12/21/16 20:15	460-00-4	M5
1,2-Dichloroethane-d4 (S)	100	%	77-126	1		12/21/16 20:15	17060-07-0	M5
Dibromofluoromethane (S)	97	%	70-130	1		12/21/16 20:15	1868-53-7	M5

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-10 **Lab ID: 30206016007** Collected: 12/16/16 13:20 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/21/16 20:42	71-43-2	M5
Ethylbenzene	ND	ug/L	5.0	1		12/21/16 20:42	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/21/16 20:42	98-82-8	M5
Methyl-tert-butyl ether	**97.6**	ug/L	5.0	1		12/21/16 20:42	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/21/16 20:42	91-20-3	M5
Toluene	ND	ug/L	5.0	1		12/21/16 20:42	108-88-3	M5
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 20:42	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 20:42	108-67-8	M5
Xylene (Total)	ND	ug/L	5.0	1		12/21/16 20:42	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	98	%	84-115	1		12/21/16 20:42	2037-26-5	M5
4-Bromofluorobenzene (S)	100	%	81-119	1		12/21/16 20:42	460-00-4	M5
1,2-Dichloroethane-d4 (S)	99	%	77-126	1		12/21/16 20:42	17060-07-0	M5
Dibromofluoromethane (S)	95	%	70-130	1		12/21/16 20:42	1868-53-7	M5

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-11 **Lab ID: 30206016008** Collected: 12/16/16 13:50 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/21/16 21:08	71-43-2	M5
Ethylbenzene	ND	ug/L	5.0	1		12/21/16 21:08	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/21/16 21:08	98-82-8	M5
Methyl-tert-butyl ether	**98.6**	ug/L	5.0	1		12/21/16 21:08	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/21/16 21:08	91-20-3	M5
Toluene	ND	ug/L	5.0	1		12/21/16 21:08	108-88-3	M5
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 21:08	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 21:08	108-67-8	M5
Xylene (Total)	ND	ug/L	5.0	1		12/21/16 21:08	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	99	%	84-115	1		12/21/16 21:08	2037-26-5	M5
4-Bromofluorobenzene (S)	99	%	81-119	1		12/21/16 21:08	460-00-4	M5
1,2-Dichloroethane-d4 (S)	102	%	77-126	1		12/21/16 21:08	17060-07-0	M5
Dibromofluoromethane (S)	98	%	70-130	1		12/21/16 21:08	1868-53-7	M5

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-12 **Lab ID: 30206016009** Collected: 12/16/16 15:00 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/21/16 22:02	71-43-2	M5
Ethylbenzene	ND	ug/L	5.0	1		12/21/16 22:02	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/21/16 22:02	98-82-8	M5
Methyl-tert-butyl ether	ND	ug/L	5.0	1		12/21/16 22:02	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/21/16 22:02	91-20-3	M5
Toluene	ND	ug/L	5.0	1		12/21/16 22:02	108-88-3	M5
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 22:02	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 22:02	108-67-8	M5
Xylene (Total)	ND	ug/L	5.0	1		12/21/16 22:02	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	97	%	84-115	1		12/21/16 22:02	2037-26-5	M5
4-Bromofluorobenzene (S)	100	%	81-119	1		12/21/16 22:02	460-00-4	M5
1,2-Dichloroethane-d4 (S)	99	%	77-126	1		12/21/16 22:02	17060-07-0	M5
Dibromofluoromethane (S)	96	%	70-130	1		12/21/16 22:02	1868-53-7	M5

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-13 **Lab ID: 30206016010** Collected: 12/16/16 16:35 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/21/16 22:28	71-43-2	M5
Ethylbenzene	ND	ug/L	5.0	1		12/21/16 22:28	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/21/16 22:28	98-82-8	M5
Methyl-tert-butyl ether	**1590**	ug/L	100	20		12/21/16 22:55	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/21/16 22:28	91-20-3	M5
Toluene	ND	ug/L	5.0	1		12/21/16 22:28	108-88-3	M5
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 22:28	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 22:28	108-67-8	M5
Xylene (Total)	ND	ug/L	5.0	1		12/21/16 22:28	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	97	%	84-115	1		12/21/16 22:28	2037-26-5	M5
4-Bromofluorobenzene (S)	99	%	81-119	1		12/21/16 22:28	460-00-4	M5
1,2-Dichloroethane-d4 (S)	102	%	77-126	1		12/21/16 22:28	17060-07-0	M5
Dibromofluoromethane (S)	98	%	70-130	1		12/21/16 22:28	1868-53-7	M5

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-16 **Lab ID: 30206016011** Collected: 12/16/16 15:55 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/21/16 23:22	71-43-2	M5
Ethylbenzene	ND	ug/L	5.0	1		12/21/16 23:22	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/21/16 23:22	98-82-8	M5
Methyl-tert-butyl ether	ND	ug/L	5.0	1		12/21/16 23:22	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/21/16 23:22	91-20-3	M5
Toluene	ND	ug/L	5.0	1		12/21/16 23:22	108-88-3	M5
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 23:22	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 23:22	108-67-8	M5
Xylene (Total)	ND	ug/L	5.0	1		12/21/16 23:22	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	100	%	84-115	1		12/21/16 23:22	2037-26-5	M5
4-Bromofluorobenzene (S)	98	%	81-119	1		12/21/16 23:22	460-00-4	M5
1,2-Dichloroethane-d4 (S)	102	%	77-126	1		12/21/16 23:22	17060-07-0	M5
Dibromofluoromethane (S)	99	%	70-130	1		12/21/16 23:22	1868-53-7	M5

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-17 **Lab ID: 30206016012** Collected: 12/16/16 12:25 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/21/16 23:49	71-43-2	M5
Ethylbenzene	ND	ug/L	5.0	1		12/21/16 23:49	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/21/16 23:49	98-82-8	M5
Methyl-tert-butyl ether	ND	ug/L	5.0	1		12/21/16 23:49	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/21/16 23:49	91-20-3	M5
Toluene	ND	ug/L	5.0	1		12/21/16 23:49	108-88-3	M5
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 23:49	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/21/16 23:49	108-67-8	M5
Xylene (Total)	ND	ug/L	5.0	1		12/21/16 23:49	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	98	%	84-115	1		12/21/16 23:49	2037-26-5	M5
4-Bromofluorobenzene (S)	98	%	81-119	1		12/21/16 23:49	460-00-4	M5
1,2-Dichloroethane-d4 (S)	103	%	77-126	1		12/21/16 23:49	17060-07-0	M5
Dibromofluoromethane (S)	97	%	70-130	1		12/21/16 23:49	1868-53-7	M5

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-18 **Lab ID: 30206016013** Collected: 12/16/16 12:15 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/22/16 00:15	71-43-2	M5
Ethylbenzene	ND	ug/L	5.0	1		12/22/16 00:15	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/22/16 00:15	98-82-8	M5
Methyl-tert-butyl ether	ND	ug/L	5.0	1		12/22/16 00:15	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/22/16 00:15	91-20-3	M5
Toluene	ND	ug/L	5.0	1		12/22/16 00:15	108-88-3	M5
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 00:15	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 00:15	108-67-8	M5
Xylene (Total)	ND	ug/L	5.0	1		12/22/16 00:15	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	99	%	84-115	1		12/22/16 00:15	2037-26-5	M5
4-Bromofluorobenzene (S)	96	%	81-119	1		12/22/16 00:15	460-00-4	M5
1,2-Dichloroethane-d4 (S)	103	%	77-126	1		12/22/16 00:15	17060-07-0	M5
Dibromofluoromethane (S)	96	%	70-130	1		12/22/16 00:15	1868-53-7	M5

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-19 **Lab ID: 30206016014** Collected: 12/16/16 12:10 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/22/16 00:42	71-43-2	M5
Ethylbenzene	ND	ug/L	5.0	1		12/22/16 00:42	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/22/16 00:42	98-82-8	M5
Methyl-tert-butyl ether	**64.8**	ug/L	5.0	1		12/22/16 00:42	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/22/16 00:42	91-20-3	M5
Toluene	ND	ug/L	5.0	1		12/22/16 00:42	108-88-3	M5
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 00:42	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 00:42	108-67-8	M5
Xylene (Total)	ND	ug/L	5.0	1		12/22/16 00:42	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	95	%	84-115	1		12/22/16 00:42	2037-26-5	M5
4-Bromofluorobenzene (S)	99	%	81-119	1		12/22/16 00:42	460-00-4	M5
1,2-Dichloroethane-d4 (S)	102	%	77-126	1		12/22/16 00:42	17060-07-0	M5
Dibromofluoromethane (S)	98	%	70-130	1		12/22/16 00:42	1868-53-7	M5

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-20 **Lab ID: 30206016015** Collected: 12/16/16 11:40 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/22/16 01:09	71-43-2	M5
Ethylbenzene	ND	ug/L	5.0	1		12/22/16 01:09	100-41-4	M5
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/22/16 01:09	98-82-8	M5
Methyl-tert-butyl ether	ND	ug/L	5.0	1		12/22/16 01:09	1634-04-4	M5
Naphthalene	ND	ug/L	5.0	1		12/22/16 01:09	91-20-3	M5
Toluene	ND	ug/L	5.0	1		12/22/16 01:09	108-88-3	M5
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 01:09	95-63-6	M5
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 01:09	108-67-8	M5
Xylene (Total)	ND	ug/L	5.0	1		12/22/16 01:09	1330-20-7	M5
Surrogates								
Toluene-d8 (S)	97	%	84-115	1		12/22/16 01:09	2037-26-5	M5
4-Bromofluorobenzene (S)	97	%	81-119	1		12/22/16 01:09	460-00-4	M5
1,2-Dichloroethane-d4 (S)	101	%	77-126	1		12/22/16 01:09	17060-07-0	M5
Dibromofluoromethane (S)	95	%	70-130	1		12/22/16 01:09	1868-53-7	M5

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-21 **Lab ID: 30206016016** Collected: 12/16/16 13:05 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/22/16 19:07	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		12/22/16 19:07	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/22/16 19:07	98-82-8	
Methyl-tert-butyl ether	**10.8**	ug/L	5.0	1		12/22/16 19:07	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		12/22/16 19:07	91-20-3	
Toluene	ND	ug/L	5.0	1		12/22/16 19:07	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 19:07	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 19:07	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		12/22/16 19:07	1330-20-7	
Surrogates								
Toluene-d8 (S)	96	%	84-115	1		12/22/16 19:07	2037-26-5	
4-Bromofluorobenzene (S)	95	%	81-119	1		12/22/16 19:07	460-00-4	
1,2-Dichloroethane-d4 (S)	110	%	77-126	1		12/22/16 19:07	17060-07-0	
Dibromofluoromethane (S)	99	%	70-130	1		12/22/16 19:07	1868-53-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-23 **Lab ID: 30206016017** Collected: 12/16/16 15:50 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/22/16 19:34	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		12/22/16 19:34	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/22/16 19:34	98-82-8	
Methyl-tert-butyl ether	**13.9**	ug/L	5.0	1		12/22/16 19:34	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		12/22/16 19:34	91-20-3	
Toluene	ND	ug/L	5.0	1		12/22/16 19:34	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 19:34	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 19:34	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		12/22/16 19:34	1330-20-7	
Surrogates								
Toluene-d8 (S)	96	%	84-115	1		12/22/16 19:34	2037-26-5	
4-Bromofluorobenzene (S)	96	%	81-119	1		12/22/16 19:34	460-00-4	
1,2-Dichloroethane-d4 (S)	113	%	77-126	1		12/22/16 19:34	17060-07-0	
Dibromofluoromethane (S)	103	%	70-130	1		12/22/16 19:34	1868-53-7	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: MW-24 **Lab ID: 30206016018** Collected: 12/16/16 11:25 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/22/16 20:01	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		12/22/16 20:01	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/22/16 20:01	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		12/22/16 20:01	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		12/22/16 20:01	91-20-3	
Toluene	ND	ug/L	5.0	1		12/22/16 20:01	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 20:01	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 20:01	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		12/22/16 20:01	1330-20-7	
Surrogates								
Toluene-d8 (S)	95	%	84-115	1		12/22/16 20:01	2037-26-5	
4-Bromofluorobenzene (S)	97	%	81-119	1		12/22/16 20:01	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	77-126	1		12/22/16 20:01	17060-07-0	
Dibromofluoromethane (S)	99	%	70-130	1		12/22/16 20:01	1868-53-7	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: RW-1 **Lab ID: 30206016019** Collected: 12/16/16 14:30 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**233**	ug/L	5.0	1		12/22/16 20:28	71-43-2	
Ethylbenzene	**37.6**	ug/L	5.0	1		12/22/16 20:28	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/22/16 20:28	98-82-8	
Methyl-tert-butyl ether	**5.3**	ug/L	5.0	1		12/22/16 20:28	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		12/22/16 20:28	91-20-3	
Toluene	ND	ug/L	5.0	1		12/22/16 20:28	108-88-3	
1,2,4-Trimethylbenzene	**40.6**	ug/L	5.0	1		12/22/16 20:28	95-63-6	
1,3,5-Trimethylbenzene	**8.3**	ug/L	5.0	1		12/22/16 20:28	108-67-8	
Xylene (Total)	**164**	ug/L	5.0	1		12/22/16 20:28	1330-20-7	
Surrogates								
Toluene-d8 (S)	98	%	84-115	1		12/22/16 20:28	2037-26-5	
4-Bromofluorobenzene (S)	97	%	81-119	1		12/22/16 20:28	460-00-4	
1,2-Dichloroethane-d4 (S)	120	%	77-126	1		12/22/16 20:28	17060-07-0	
Dibromofluoromethane (S)	101	%	70-130	1		12/22/16 20:28	1868-53-7	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: RW-2 **Lab ID: 30206016020** Collected: 12/16/16 14:50 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**177**	ug/L	5.0	1		12/22/16 21:21	71-43-2	
Ethylbenzene	**186**	ug/L	5.0	1		12/22/16 21:21	100-41-4	
Isopropylbenzene (Cumene)	**24.3**	ug/L	5.0	1		12/22/16 21:21	98-82-8	
Methyl-tert-butyl ether	**123**	ug/L	5.0	1		12/22/16 21:21	1634-04-4	
Naphthalene	**63.2**	ug/L	5.0	1		12/22/16 21:21	91-20-3	
Toluene	ND	ug/L	5.0	1		12/22/16 21:21	108-88-3	
1,2,4-Trimethylbenzene	**83.6**	ug/L	5.0	1		12/22/16 21:21	95-63-6	
1,3,5-Trimethylbenzene	**147**	ug/L	5.0	1		12/22/16 21:21	108-67-8	
Xylene (Total)	**70.1**	ug/L	5.0	1		12/22/16 21:21	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	84-115	1		12/22/16 21:21	2037-26-5	
4-Bromofluorobenzene (S)	97	%	81-119	1		12/22/16 21:21	460-00-4	
1,2-Dichloroethane-d4 (S)	121	%	77-126	1		12/22/16 21:21	17060-07-0	
Dibromofluoromethane (S)	98	%	70-130	1		12/22/16 21:21	1868-53-7	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: RW-3 **Lab ID: 30206016021** Collected: 12/16/16 15:20 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**141**	ug/L	5.0	1		12/22/16 22:14	71-43-2	
Ethylbenzene	**239**	ug/L	5.0	1		12/22/16 22:14	100-41-4	
Isopropylbenzene (Cumene)	**18.9**	ug/L	5.0	1		12/22/16 22:14	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		12/22/16 22:14	1634-04-4	
Naphthalene	**215**	ug/L	5.0	1		12/22/16 22:14	91-20-3	
Toluene	**256**	ug/L	5.0	1		12/22/16 22:14	108-88-3	
1,2,4-Trimethylbenzene	**1410**	ug/L	100	20		12/22/16 22:41	95-63-6	
1,3,5-Trimethylbenzene	**560**	ug/L	100	20		12/22/16 22:41	108-67-8	
Xylene (Total)	**6280**	ug/L	100	20		12/22/16 22:41	1330-20-7	
Surrogates								
Toluene-d8 (S)	107	%	84-115	1		12/22/16 22:14	2037-26-5	
4-Bromofluorobenzene (S)	96	%	81-119	1		12/22/16 22:14	460-00-4	
1,2-Dichloroethane-d4 (S)	126	%	77-126	1		12/22/16 22:14	17060-07-0	
Dibromofluoromethane (S)	96	%	70-130	1		12/22/16 22:14	1868-53-7	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206016

Sample: Duplicate **Lab ID: 30206016022** Collected: 12/16/16 00:00 Received: 12/19/16 16:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		12/22/16 23:07	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		12/22/16 23:07	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/22/16 23:07	98-82-8	
Methyl-tert-butyl ether	**1700**	ug/L	50.0	10		12/22/16 23:34	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		12/22/16 23:07	91-20-3	
Toluene	ND	ug/L	5.0	1		12/22/16 23:07	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 23:07	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		12/22/16 23:07	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		12/22/16 23:07	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	84-115	1		12/22/16 23:07	2037-26-5	
4-Bromofluorobenzene (S)	99	%	81-119	1		12/22/16 23:07	460-00-4	
1,2-Dichloroethane-d4 (S)	116	%	77-126	1		12/22/16 23:07	17060-07-0	
Dibromofluoromethane (S)	104	%	70-130	1		12/22/16 23:07	1868-53-7	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30206016

QC Batch: 244315 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 30206016001, 30206016002, 30206016003, 30206016004, 30206016005, 30206016006, 30206016007, 30206016008, 30206016009, 30206016010, 30206016011, 30206016012, 30206016013, 30206016014, 30206016015

METHOD BLANK: 1202171 Matrix: Water
Associated Lab Samples: 30206016001, 30206016002, 30206016003, 30206016004, 30206016005, 30206016006, 30206016007, 30206016008, 30206016009, 30206016010, 30206016011, 30206016012, 30206016013, 30206016014, 30206016015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	12/21/16 16:16	M5
1,3,5-Trimethylbenzene	ug/L	ND	1.0	12/21/16 16:16	M5
Benzene	ug/L	ND	1.0	12/21/16 16:16	M5
Ethylbenzene	ug/L	ND	1.0	12/21/16 16:16	M5
Isopropylbenzene (Cumene)	ug/L	ND	1.0	12/21/16 16:16	M5
Methyl-tert-butyl ether	ug/L	ND	1.0	12/21/16 16:16	M5
Naphthalene	ug/L	ND	2.0	12/21/16 16:16	M5
Toluene	ug/L	ND	1.0	12/21/16 16:16	M5
Xylene (Total)	ug/L	ND	3.0	12/21/16 16:16	M5
1,2-Dichloroethane-d4 (S)	%	109	77-126	12/21/16 16:16	M5
4-Bromofluorobenzene (S)	%	96	81-119	12/21/16 16:16	M5
Dibromofluoromethane (S)	%	101	70-130	12/21/16 16:16	M5
Toluene-d8 (S)	%	98	84-115	12/21/16 16:16	M5

LABORATORY CONTROL SAMPLE: 1202172

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.6	103	75-128	M5
1,3,5-Trimethylbenzene	ug/L	20	20.2	101	74-125	M5
Benzene	ug/L	20	19.5	98	69-115	M5
Ethylbenzene	ug/L	20	18.3	92	71-116	M5
Isopropylbenzene (Cumene)	ug/L	20	20.7	103	79-121	M5
Methyl-tert-butyl ether	ug/L	20	24.0	120	83-140	M5
Naphthalene	ug/L	20	20.7	103	64-140	M5
Toluene	ug/L	20	18.7	93	70-115	M5
Xylene (Total)	ug/L	60	57.6	96	73-118	M5
1,2-Dichloroethane-d4 (S)	%			104	77-126	M5
4-Bromofluorobenzene (S)	%			101	81-119	M5
Dibromofluoromethane (S)	%			106	70-130	M5
Toluene-d8 (S)	%			99	84-115	M5

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30206016

QC Batch: 244446 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 30206016016, 30206016017, 30206016018, 30206016019, 30206016020, 30206016021, 30206016022

METHOD BLANK: 1203088 Matrix: Water
Associated Lab Samples: 30206016016, 30206016017, 30206016018, 30206016019, 30206016020, 30206016021, 30206016022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	12/22/16 15:34	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	12/22/16 15:34	
Benzene	ug/L	ND	1.0	12/22/16 15:34	
Ethylbenzene	ug/L	ND	1.0	12/22/16 15:34	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	12/22/16 15:34	
Methyl-tert-butyl ether	ug/L	ND	1.0	12/22/16 15:34	
Naphthalene	ug/L	ND	2.0	12/22/16 15:34	
Toluene	ug/L	ND	1.0	12/22/16 15:34	
Xylene (Total)	ug/L	ND	3.0	12/22/16 15:34	
1,2-Dichloroethane-d4 (S)	%	106	77-126	12/22/16 15:34	
4-Bromofluorobenzene (S)	%	100	81-119	12/22/16 15:34	
Dibromofluoromethane (S)	%	100	70-130	12/22/16 15:34	
Toluene-d8 (S)	%	97	84-115	12/22/16 15:34	

LABORATORY CONTROL SAMPLE: 1203089

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	18.9	95	75-128	
1,3,5-Trimethylbenzene	ug/L	20	18.2	91	74-125	
Benzene	ug/L	20	17.5	87	69-115	
Ethylbenzene	ug/L	20	17.6	88	71-116	
Isopropylbenzene (Cumene)	ug/L	20	18.8	94	79-121	
Methyl-tert-butyl ether	ug/L	20	22.2	111	83-140	
Naphthalene	ug/L	20	18.6	93	64-140	
Toluene	ug/L	20	17.3	87	70-115	
Xylene (Total)	ug/L	60	54.2	90	73-118	
1,2-Dichloroethane-d4 (S)	%			106	77-126	
4-Bromofluorobenzene (S)	%			99	81-119	
Dibromofluoromethane (S)	%			105	70-130	
Toluene-d8 (S)	%			98	84-115	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALIFIERS

Project: UPA Bradford M-061
Pace Project No.: 30206016

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: 244315

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M5 A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M-061
Pace Project No.: 30206016

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30206016001	MW-1R	EPA 8260B	244315		
30206016002	MW-4	EPA 8260B	244315		
30206016003	MW-6	EPA 8260B	244315		
30206016004	MW-7	EPA 8260B	244315		
30206016005	MW-8	EPA 8260B	244315		
30206016006	MW-9	EPA 8260B	244315		
30206016007	MW-10	EPA 8260B	244315		
30206016008	MW-11	EPA 8260B	244315		
30206016009	MW-12	EPA 8260B	244315		
30206016010	MW-13	EPA 8260B	244315		
30206016011	MW-16	EPA 8260B	244315		
30206016012	MW-17	EPA 8260B	244315		
30206016013	MW-18	EPA 8260B	244315		
30206016014	MW-19	EPA 8260B	244315		
30206016015	MW-20	EPA 8260B	244315		
30206016016	MW-21	EPA 8260B	244446		
30206016017	MW-23	EPA 8260B	244446		
30206016018	MW-24	EPA 8260B	244446		
30206016019	RW-1	EPA 8260B	244446		
30206016020	RW-2	EPA 8260B	244446		
30206016021	RW-3	EPA 8260B	244446		
30206016022	Duplicate	EPA 8260B	244446		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Groundwater & Environmental Services	Report To:	Joe Hinkle	Attention:	ges-invoices@gesonline.com
Address:	301 Commerce Park Drive	Copy To:	Joan Amodeo	Company Name:	Groundwater & Environmental Services
Cranberry Twp, PA 16066		301 Commerce Park Drive, Cranberry Twp, PA 16066		Address:	
Email To:	jhinkle@gesonline.com	Purchase Order No.	0704975/06/160 Org #1407	Pace Quote Reference:	
Phone:	800-267-2549 Fax: 724-779-4617	Client Project ID:	UPA Bradford M-061	Pace Project Manager:	Christner, Rachel
Requested Due Date/TAT:	10 Day (Default)	Container Order Number:		Pace Profile #:	

Regulatory Agency
UST - Underground Storage Tank
State / Location
Pennsylvania

WO#:30206016

ITEM#	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Y/N	Analyses Test: 8260B (NEW Unleaded Shortlist)	Residual	
1	MW-1R	WT	G			12-16-16	1610		3				X						X		001
2	MW-3R	WT	G						3				X						X		no sample
3	MW-4	WT	G				1603		3				X						X		002
4	MW-5	WT	G						3				X						X		no sample
5	MW-6	WT	G				1490		3				X						X		003
6	MW-7	WT	G				1540		3				X						X		004
7	MW-8	WT	G				1390		3				X						X		005
8	MW-9	WT	G				1530		3				X						X		006
9	MW-10	WT	G				1320		3				X						X		007
10	MW-11	WT	G				1350		3				X						X		008
11	MW-12	WT	G				1503		3				X						X		009
12	MW-13	WT	G				1635		3				X						X		010

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Hold trip blank pending analysis	Justin Peal / GES	12-16-16	2000	Shipper Receiving / GES	12.16.16	2000				
Please use 5 pcb extraction limits	Shipper Receiving / GES			Gary Pace	12-19-16	11:00				
	Gary Pace 12-19-16	9:20		Angela K Mullaney PACE	12/19/16	1620	3A	Y	Y	Y

EQUIS EDD Required

SAMPLER NAME AND SIGNATURE			
PRINT Name of SAMPLER:	Justin Peal		
SIGNATURE of SAMPLER:		DATE Signed:	12/16/16

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

30206016

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Pace Analytical

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Groundwater & Environmental Services	Report To:	Joe Hinkle	Attention:	ges-invoices@gesonline.com
Address:	301 Commerce Park Drive	Copy To:	Joan Amodeo	Company Name:	Groundwater & Environmental Services
Cranberry Twp, PA 16066		301 Commerce Park Drive, Cranberry Twp, PA 16066		Address:	
Email To:	jhinkle@gesonline.com	Purchase Order No.	0704975/06/160 Org #1407	Pace Quote Reference:	
Phone: 800-267-2549	Fax: 724-779-4617	Client Project ID:	UPA Bradford M-061	Pace Project Manager:	Christner, Rachel
Requested Due Date/TAT:	10 Day (Default)	Container Order Number:		Pace Profile #:	

Regulatory Agency
UST - Underground Storage Tank
State / Location
Pennsylvania

SAMPLE ID — One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

Requested Analysis Filtered (Y/N)

ITEM#	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	8260B (NEW Unleaded Shortlist)	Residual Chlorine (Y/N)	
1	~~MW-14~~	WT	G						3				X						X		NO SAMPLE
2	~~MW-15~~	WT	G						3				X						X		NO SAMPLE
3	MW-16	WT	G			12.16.16	1355	[illegible]	3				X						X		[illegible] 011
4	MW-17	WT	G			↓	1258		3				X						X		012
5	MW-18	WT	G				1315		3				X						X		013
6	MW-19	WT	G				1210		3				X						X		014
7	MW-20	WT	G				1140		3				X						X		015
8	MW-21	WT	G				1305		3				X						X		016
9	~~MW-22~~	WT	G						3				X						X		NO SAMPLE
10	MW-23	WT	G				1555		3				X						X		017
11	MW-24	WT	G				1435		3				X						X		018
12	RW-1	WT	G				1430		3				X						X		019

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Hold trip blank analysis pending results.	Justin [illegible] / GES	12.16.16	2000	Sample Receiving / GES	12.16.16	2000				
Please use 5 ppb detection limit.	Sample Receiving / GES			[illegible] Pace	12-19-16	11:00				
	[illegible] Pace	12-19-16	4:20	[illegible] Pace	12-19-16	1620	3.4	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

EQUIS EDD Required

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Justin [illegible]

SIGNATURE of SAMPLER: [signature] DATE Signed: 12/16/16

30206016

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Groundwater & Environmental Services	Report To:	Joe Hinkle	Attention:	ges-invoices@gesonline.com
Address:	301 Commerce Park Drive	Copy To:	Joan Amodeo	Company Name:	Groundwater & Environmental Services
Cranberry Twp, PA 16066		301 Commerce Park Drive, Cranberry Twp, PA 16066		Address:	
Email To:	jhinkle@gesonline.com	Purchase Order No.	0704975/06/160 Org #1407	Pace Quote Reference:	
Phone:	800-267-2549 Fax: 724-779-4617	Client Project ID:	UPA Bradford M-061	Pace Project Manager:	Christner, Rachel
Requested Due Date/TAT:	10 Day (Default)	Container Order Number:		Pace Profile #:	

Regulatory Agency
UST - Underground Storage Tank
State / Location
Pennsylvania

ITEM#	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	8260B (NEW Unleaded Shortlist)	Residual Chlorine (Y/N)	
1	RW-2	WT	G			12.16.16	1435		3				X						X		020
2	RW-3	WT	G			↓	1530		3				X						X		021
3	Duplicate	WT	G				[illegible]		3				X						X		022
4	Trip Blank	WT	G				[illegible]		2				X						X		023
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Hold trip blank analysis pending results.	Justin Pace / GES	12.16.16	2000	Simon Reeves / GES	12.16.16	2000				
Please use 5 ppb detection limit.	Simon Reeves / GES			Pace	12-19-16	1120				
	Pace	12-19-16	4:25	Alyssa Richards / PACE	12/19/16	1120	3.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE			
PRINT Name of SAMPLER:	Justin Pace		
SIGNATURE of SAMPLER:		DATE Signed:	12-16-16

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

EQUIS EDD Required

Sample Condition Upon Receipt Pittsburgh 30206016

Pace Analytical

Client Name: GES Project #

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other

Tracking #:

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Thermometer Used 10 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 3.2 °C Correction Factor: +0.2 °C Final Temp: 3.4 °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: ARM 12/19/16

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓			10.
Containers Intact:	✓			11.
Filtered volume received for Dissolved tests			✓	12.
All containers needing preservation have been checked. All containers needing preservation are found to be in compliance with EPA recommendation. exceptions: VOA, coliform, TOC, O&G, Phenolics			✓	13. Initial when completed: ARM Date/time of preservation; Lot # of added preservative
Headspace in VOA Vials (>6mm):		✓		14.
Trip Blank Present:	✓			15.
Trip Blank Custody Seals Present	✓			
Rad Aqueous Samples Screened > 0.5 mrem/hr			✓	Initial when completed: ARM Date:

Client Notification/ Resolution:

Person Contacted: Date/Time: Contacted By:

Comments/ Resolution:

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

***PM review** is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

November 14, 2016

Mr. Joseph Skurka
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: UPA Bradford 061
Pace Project No.: 30201724

Dear Mr. Skurka:
Enclosed are the analytical results for sample(s) received by the laboratory on November 05, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rachel D Christner

Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental Services, Inc.
Lauren Bidwell, Groundwater & Environmental Services, Inc.
Mr. Joe Hinkle, Groundwater & Environmental Services

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: UPA Bradford 061
Pace Project No.: 30201724

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: UPA Bradford 061
Pace Project No.: 30201724

Sample: Effluent **Lab ID: 30201724001** Collected: 11/04/16 12:30 Received: 11/05/16 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Aluminum	**72.7**	ug/L	50.0	1	11/09/16 07:48	11/10/16 12:08	7429-90-5	
Antimony	**8.4**	ug/L	6.0	1	11/09/16 07:48	11/10/16 12:08	7440-36-0	
Arsenic	**45.6**	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:08	7440-38-2	
Barium	**151**	ug/L	10.0	1	11/09/16 07:48	11/10/16 12:08	7440-39-3	
Beryllium	ND	ug/L	1.0	1	11/09/16 07:48	11/10/16 12:08	7440-41-7	
Boron	ND	ug/L	50.0	1	11/09/16 07:48	11/10/16 12:08	7440-42-8	
Cadmium	ND	ug/L	3.0	1	11/09/16 07:48	11/10/16 12:08	7440-43-9	
Calcium	**75200**	ug/L	1000	1	11/09/16 07:48	11/10/16 12:08	7440-70-2	
Chromium	ND	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:08	7440-47-3	
Cobalt	ND	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:08	7440-48-4	
Copper	ND	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:08	7440-50-8	
Iron	**195**	ug/L	70.0	1	11/09/16 07:48	11/10/16 12:08	7439-89-6	
Lead	ND	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:08	7439-92-1	
Magnesium	**14500**	ug/L	200	1	11/09/16 07:48	11/10/16 12:08	7439-95-4	
Manganese	**1360**	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:08	7439-96-5	
Molybdenum	**33.6**	ug/L	20.0	1	11/09/16 07:48	11/10/16 12:08	7439-98-7	
Nickel	**12.9**	ug/L	10.0	1	11/09/16 07:48	11/10/16 12:08	7440-02-0	
Potassium	**14200**	ug/L	500	1	11/09/16 07:48	11/10/16 12:08	7440-09-7	
Selenium	ND	ug/L	8.0	1	11/09/16 07:48	11/10/16 12:08	7782-49-2	
Silver	ND	ug/L	6.0	1	11/09/16 07:48	11/10/16 12:08	7440-22-4	
Sodium	**220000**	ug/L	1000	1	11/09/16 07:48	11/10/16 12:08	7440-23-5	
Thallium	ND	ug/L	10.0	1	11/09/16 07:48	11/10/16 12:08	7440-28-0	
Vanadium	ND	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:08	7440-62-2	
Zinc	ND	ug/L	10.0	1	11/09/16 07:48	11/10/16 12:08	7440-66-6	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	11/09/16 12:10	11/10/16 01:09	7439-97-6	
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		11/08/16 16:40	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		11/08/16 16:40	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		11/08/16 16:40	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/08/16 16:40	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		11/08/16 16:40	91-20-3	
Toluene	ND	ug/L	1.0	1		11/08/16 16:40	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		11/08/16 16:40	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		11/08/16 16:40	108-67-8	
Xylene (Total)	ND	ug/L	3.0	1		11/08/16 16:40	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	84-115	1		11/08/16 16:40	2037-26-5	
4-Bromofluorobenzene (S)	102	%	81-119	1		11/08/16 16:40	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	77-126	1		11/08/16 16:40	17060-07-0	
Dibromofluoromethane (S)	36	%	70-130	1		11/08/16 16:40	1868-53-7	1c
HEM, Oil and Grease	Analytical Method: EPA 1664A							
Oil and Grease	ND	mg/L	4.8	1		11/10/16 07:30		M5

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: UPA Bradford 061
Pace Project No.: 30201724

Sample: Effluent **Lab ID: 30201724001** Collected: 11/04/16 12:30 Received: 11/05/16 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
335.4 Cyanide, Total	Analytical Method: EPA 335.4 Preparation Method: EPA 335.4							
Cyanide	ND	mg/L	0.010	1	11/11/16 19:35	11/11/16 21:35	57-12-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: UPA Bradford 061
Pace Project No.: 30201724

Sample: Influent **Lab ID: 30201724002** Collected: 11/04/16 12:40 Received: 11/05/16 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Aluminum	**66.6**	ug/L	50.0	1	11/09/16 07:48	11/10/16 12:10	7429-90-5	
Antimony	ND	ug/L	6.0	1	11/09/16 07:48	11/10/16 12:10	7440-36-0	
Arsenic	**15.2**	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:10	7440-38-2	
Barium	**395**	ug/L	10.0	1	11/09/16 07:48	11/10/16 12:10	7440-39-3	
Beryllium	ND	ug/L	1.0	1	11/09/16 07:48	11/10/16 12:10	7440-41-7	
Boron	**55.4**	ug/L	50.0	1	11/09/16 07:48	11/10/16 12:10	7440-42-8	
Cadmium	ND	ug/L	3.0	1	11/09/16 07:48	11/10/16 12:10	7440-43-9	
Calcium	**79700**	ug/L	1000	1	11/09/16 07:48	11/10/16 12:10	7440-70-2	
Chromium	ND	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:10	7440-47-3	
Cobalt	**38.3**	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:10	7440-48-4	
Copper	**174**	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:10	7440-50-8	
Iron	**7330**	ug/L	70.0	1	11/09/16 07:48	11/10/16 12:10	7439-89-6	
Lead	**98.9**	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:10	7439-92-1	
Magnesium	**12700**	ug/L	200	1	11/09/16 07:48	11/10/16 12:10	7439-95-4	
Manganese	**3590**	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:10	7439-96-5	
Molybdenum	ND	ug/L	20.0	1	11/09/16 07:48	11/10/16 12:10	7439-98-7	
Nickel	**24.8**	ug/L	10.0	1	11/09/16 07:48	11/10/16 12:10	7440-02-0	
Potassium	**8030**	ug/L	500	1	11/09/16 07:48	11/10/16 12:10	7440-09-7	
Selenium	ND	ug/L	8.0	1	11/09/16 07:48	11/10/16 12:10	7782-49-2	
Silver	ND	ug/L	6.0	1	11/09/16 07:48	11/10/16 12:10	7440-22-4	
Sodium	**217000**	ug/L	1000	1	11/09/16 07:48	11/10/16 12:10	7440-23-5	
Thallium	ND	ug/L	10.0	1	11/09/16 07:48	11/10/16 12:10	7440-28-0	
Vanadium	ND	ug/L	5.0	1	11/09/16 07:48	11/10/16 12:10	7440-62-2	
Zinc	**699**	ug/L	10.0	1	11/09/16 07:48	11/10/16 12:10	7440-66-6	
245.1 Mercury	Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	11/09/16 12:10	11/10/16 01:11	7439-97-6	
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**367**	ug/L	10.0	10		11/09/16 21:12	71-43-2	
Ethylbenzene	**265**	ug/L	1.0	1		11/08/16 17:06	100-41-4	
Isopropylbenzene (Cumene)	**16.2**	ug/L	1.0	1		11/08/16 17:06	98-82-8	
Methyl-tert-butyl ether	**1.8**	ug/L	1.0	1		11/08/16 17:06	1634-04-4	
Naphthalene	**61.9**	ug/L	2.0	1		11/08/16 17:06	91-20-3	
Toluene	**339**	ug/L	1.0	1		11/08/16 17:06	108-88-3	
1,2,4-Trimethylbenzene	**367**	ug/L	1.0	1		11/08/16 17:06	95-63-6	
1,3,5-Trimethylbenzene	**110**	ug/L	1.0	1		11/08/16 17:06	108-67-8	
Xylene (Total)	**1550**	ug/L	30.0	10		11/09/16 21:12	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	84-115	1		11/08/16 17:06	2037-26-5	
4-Bromofluorobenzene (S)	97	%	81-119	1		11/08/16 17:06	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	77-126	1		11/08/16 17:06	17060-07-0	
Dibromofluoromethane (S)	92	%	70-130	1		11/08/16 17:06	1868-53-7	
HEM, Oil and Grease	Analytical Method: EPA 1664A							
Oil and Grease	ND	mg/L	4.8	1		11/10/16 07:30		M5

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
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(724)850-5600

ANALYTICAL RESULTS

Project: UPA Bradford 061
Pace Project No.: 30201724

Sample: Influent **Lab ID: 30201724002** Collected: 11/04/16 12:40 Received: 11/05/16 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
335.4 Cyanide, Total	Analytical Method: EPA 335.4 Preparation Method: EPA 335.4							
Cyanide	ND	mg/L	0.010	1	11/11/16 19:35	11/11/16 21:38	57-12-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(724)850-5600

QUALITY CONTROL DATA

Project: UPA Bradford 061
Pace Project No.: 30201724

QC Batch: 239686
QC Batch Method: EPA 245.1
Analysis Method: EPA 245.1
Analysis Description: 245.1 Mercury
Associated Lab Samples: 30201724001, 30201724002

METHOD BLANK: 1177767 Matrix: Water
Associated Lab Samples: 30201724001, 30201724002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	11/10/16 00:48	

LABORATORY CONTROL SAMPLE: 1177768

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.0	105	85-115	

MATRIX SPIKE SAMPLE: 1177770

Parameter	Units	30201075001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	ND	2.5	2.4	96	70-130	

SAMPLE DUPLICATE: 1177769

Parameter	Units	30201075001 Result	Dup Result	RPD	Qualifiers
Mercury	ug/L	ND	ND		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: UPA Bradford 061
Pace Project No.: 30201724

QC Batch: 239621
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 30201724001, 30201724002

METHOD BLANK: 1177514
Matrix: Water
Associated Lab Samples: 30201724001, 30201724002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	50.0	11/10/16 10:57	
Antimony	ug/L	ND	6.0	11/10/16 10:57	
Arsenic	ug/L	ND	5.0	11/10/16 10:57	
Barium	ug/L	ND	10.0	11/10/16 10:57	
Beryllium	ug/L	ND	1.0	11/10/16 10:57	
Boron	ug/L	ND	50.0	11/10/16 10:57	
Cadmium	ug/L	ND	3.0	11/10/16 10:57	
Calcium	ug/L	ND	1000	11/10/16 10:57	
Chromium	ug/L	ND	5.0	11/10/16 10:57	
Cobalt	ug/L	ND	5.0	11/10/16 10:57	
Copper	ug/L	ND	5.0	11/10/16 10:57	
Iron	ug/L	ND	70.0	11/10/16 10:57	
Lead	ug/L	ND	5.0	11/10/16 10:57	
Magnesium	ug/L	ND	200	11/10/16 10:57	
Manganese	ug/L	ND	5.0	11/10/16 10:57	
Molybdenum	ug/L	ND	20.0	11/10/16 10:57	
Nickel	ug/L	ND	10.0	11/10/16 10:57	
Potassium	ug/L	ND	500	11/10/16 10:57	
Selenium	ug/L	ND	8.0	11/10/16 10:57	
Silver	ug/L	ND	6.0	11/10/16 10:57	
Sodium	ug/L	ND	1000	11/10/16 10:57	
Thallium	ug/L	ND	10.0	11/10/16 10:57	
Vanadium	ug/L	ND	5.0	11/10/16 10:57	
Zinc	ug/L	ND	10.0	11/10/16 10:57	

LABORATORY CONTROL SAMPLE: 1177515

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	5000	4680	94	85-115	
Antimony	ug/L	500	519	104	85-115	
Arsenic	ug/L	500	485	97	85-115	
Barium	ug/L	500	507	101	85-115	
Beryllium	ug/L	500	491	98	85-115	
Boron	ug/L	500	524	105	85-115	
Cadmium	ug/L	500	506	101	85-115	
Calcium	ug/L	5000	4680	94	85-115	
Chromium	ug/L	500	496	99	85-115	
Cobalt	ug/L	500	467	93	85-115	
Copper	ug/L	500	513	103	85-115	
Iron	ug/L	5000	4750	95	85-115	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford 061
Pace Project No.: 30201724

LABORATORY CONTROL SAMPLE: 1177515

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	ug/L	500	477	95	85-115	
Magnesium	ug/L	5000	4640	93	85-115	
Manganese	ug/L	500	486	97	85-115	
Molybdenum	ug/L	500	468	94	85-115	
Nickel	ug/L	500	518	104	85-115	
Potassium	ug/L	5000	5000	100	85-115	
Selenium	ug/L	500	514	103	85-115	
Silver	ug/L	250	255	102	85-115	
Sodium	ug/L	5000	4860	97	85-115	
Thallium	ug/L	500	483	97	85-115	
Vanadium	ug/L	500	486	97	85-115	
Zinc	ug/L	500	506	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1177517 1177518

Parameter	Units	30201733009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Aluminum	ug/L	ND	5000	5000	5010	4950	100	99	70-130	1	
Antimony	ug/L	ND	500	500	541	534	108	107	70-130	1	
Arsenic	ug/L	ND	500	500	529	520	105	103	70-130	2	
Barium	ug/L	472	500	500	1010	997	107	105	70-130	1	
Beryllium	ug/L	ND	500	500	497	491	99	98	70-130	1	
Boron	ug/L	171	500	500	710	704	108	107	70-130	1	
Cadmium	ug/L	ND	500	500	532	527	106	105	70-130	1	
Calcium	ug/L	172000	5000	5000	184000	182000	240	200	70-130	1	M1
Chromium	ug/L	ND	500	500	482	474	96	95	70-130	2	
Cobalt	ug/L	ND	500	500	492	487	98	97	70-130	1	
Copper	ug/L	ND	500	500	524	517	105	103	70-130	1	
Iron	ug/L	4000	5000	5000	8980	8870	99	97	70-130	1	
Lead	ug/L	ND	500	500	495	484	99	97	70-130	2	
Magnesium	ug/L	38600	5000	5000	45300	44800	134	123	70-130	1	M1
Manganese	ug/L	1480	500	500	2020	1990	107	102	70-130	1	
Molybdenum	ug/L	ND	500	500	523	516	104	103	70-130	1	
Nickel	ug/L	ND	500	500	481	479	96	95	70-130	0	
Potassium	ug/L	5330	5000	5000	11100	10900	116	112	70-130	2	
Selenium	ug/L	ND	500	500	538	537	107	107	70-130	0	
Silver	ug/L	ND	250	250	270	265	108	106	70-130	2	
Sodium	ug/L	234000	5000	5000	251000	249000	338	282	70-130	1	M1
Thallium	ug/L	ND	500	500	461	456	92	91	70-130	1	
Vanadium	ug/L	ND	500	500	490	483	98	97	70-130	1	
Zinc	ug/L	ND	500	500	481	477	96	95	70-130	1	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(724)850-5600

QUALITY CONTROL DATA

Project: UPA Bradford 061
Pace Project No.: 30201724

MATRIX SPIKE SAMPLE: 1177520

Parameter	Units	30201733011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	ND	5000	5010	99	70-130	
Antimony	ug/L	ND	500	554	110	70-130	
Arsenic	ug/L	ND	500	532	106	70-130	
Barium	ug/L	272	500	794	104	70-130	
Beryllium	ug/L	ND	500	501	100	70-130	
Boron	ug/L	193	500	744	110	70-130	
Cadmium	ug/L	ND	500	541	108	70-130	
Calcium	ug/L	197000	5000	206000	192	70-130	M1
Chromium	ug/L	ND	500	483	97	70-130	
Cobalt	ug/L	ND	500	495	99	70-130	
Copper	ug/L	ND	500	535	107	70-130	
Iron	ug/L	2490	5000	7350	97	70-130	
Lead	ug/L	ND	500	498	99	70-130	
Magnesium	ug/L	43100	5000	49400	124	70-130	
Manganese	ug/L	1470	500	1970	101	70-130	
Molybdenum	ug/L	ND	500	532	106	70-130	
Nickel	ug/L	ND	500	483	95	70-130	
Potassium	ug/L	5630	5000	11200	112	70-130	
Selenium	ug/L	ND	500	552	110	70-130	
Silver	ug/L	ND	250	280	112	70-130	
Sodium	ug/L	362000	5000	373000	230	70-130	M1
Thallium	ug/L	ND	500	453	91	70-130	
Vanadium	ug/L	ND	500	493	99	70-130	
Zinc	ug/L	ND	500	487	97	70-130	

SAMPLE DUPLICATE: 1177516

Parameter	Units	30201733009 Result	Dup Result	RPD	Qualifiers
Aluminum	ug/L	ND	16.2J		
Antimony	ug/L	ND	ND		
Arsenic	ug/L	ND	10.9		
Barium	ug/L	472	496	5	
Beryllium	ug/L	ND	ND		
Boron	ug/L	171	173	1	
Cadmium	ug/L	ND	ND		
Calcium	ug/L	172000	180000	4	
Chromium	ug/L	ND	ND		
Cobalt	ug/L	ND	ND		
Copper	ug/L	ND	ND		
Iron	ug/L	4000	4190	4	
Lead	ug/L	ND	ND		
Magnesium	ug/L	38600	40400	5	
Manganese	ug/L	1480	1550	5	
Molybdenum	ug/L	ND	ND		
Nickel	ug/L	ND	2.9J		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: UPA Bradford 061
Pace Project No.: 30201724

SAMPLE DUPLICATE: 1177516

Parameter	Units	30201733009 Result	Dup Result	RPD	Qualifiers
Potassium	ug/L	5330	5600	5	
Selenium	ug/L	ND	ND		
Silver	ug/L	ND	ND		
Sodium	ug/L	234000	247000	5	
Thallium	ug/L	ND	ND		
Vanadium	ug/L	ND	ND		
Zinc	ug/L	ND	ND		

SAMPLE DUPLICATE: 1177519

Parameter	Units	30201733011 Result	Dup Result	RPD	Qualifiers
Aluminum	ug/L	ND	47.2J		
Antimony	ug/L	ND	ND		
Arsenic	ug/L	ND	ND		
Barium	ug/L	272	270	1	
Beryllium	ug/L	ND	ND		
Boron	ug/L	193	192	0	
Cadmium	ug/L	ND	ND		
Calcium	ug/L	197000	197000	0	
Chromium	ug/L	ND	ND		
Cobalt	ug/L	ND	ND		
Copper	ug/L	ND	ND		
Iron	ug/L	2490	2480	0	
Lead	ug/L	ND	ND		
Magnesium	ug/L	43100	43000	0	
Manganese	ug/L	1470	1460	0	
Molybdenum	ug/L	ND	ND		
Nickel	ug/L	ND	5.1J		
Potassium	ug/L	5630	5610	0	
Selenium	ug/L	ND	ND		
Silver	ug/L	ND	ND		
Sodium	ug/L	362000	360000	0	
Thallium	ug/L	ND	ND		
Vanadium	ug/L	ND	ND		
Zinc	ug/L	ND	3.5J		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: UPA Bradford 061
Pace Project No.: 30201724

QC Batch: 239584 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 30201724001, 30201724002

METHOD BLANK: 1177276 Matrix: Water
Associated Lab Samples: 30201724001, 30201724002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	11/08/16 16:13	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	11/08/16 16:13	
Benzene	ug/L	ND	1.0	11/08/16 16:13	
Ethylbenzene	ug/L	ND	1.0	11/08/16 16:13	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	11/08/16 16:13	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/08/16 16:13	
Naphthalene	ug/L	ND	2.0	11/08/16 16:13	
Toluene	ug/L	ND	1.0	11/08/16 16:13	
Xylene (Total)	ug/L	ND	3.0	11/08/16 16:13	
1,2-Dichloroethane-d4 (S)	%	100	77-126	11/08/16 16:13	
4-Bromofluorobenzene (S)	%	101	81-119	11/08/16 16:13	
Dibromofluoromethane (S)	%	95	70-130	11/08/16 16:13	
Toluene-d8 (S)	%	97	84-115	11/08/16 16:13	

LABORATORY CONTROL SAMPLE: 1177277

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	19.7	99	75-128	
1,3,5-Trimethylbenzene	ug/L	20	19.3	97	74-125	
Benzene	ug/L	20	18.9	94	69-115	
Ethylbenzene	ug/L	20	19.0	95	71-116	
Isopropylbenzene (Cumene)	ug/L	20	19.4	97	79-121	
Methyl-tert-butyl ether	ug/L	20	22.8	114	83-140	
Naphthalene	ug/L	20	23.3	116	64-140	
Toluene	ug/L	20	18.6	93	70-115	
Xylene (Total)	ug/L	60	57.5	96	73-118	
1,2-Dichloroethane-d4 (S)	%			99	77-126	
4-Bromofluorobenzene (S)	%			100	81-119	
Dibromofluoromethane (S)	%			101	70-130	
Toluene-d8 (S)	%			97	84-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1177721 1177722

Parameter	Units	30201833001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	18.0	17.8	90	89	69-121	1	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	17.6	17.8	88	89	68-118	1	
Benzene	ug/L	ND	20	20	18.5	17.9	93	90	63-123	3	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(724)850-5600

QUALITY CONTROL DATA

Project: UPA Bradford 061
Pace Project No.: 30201724

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1177721 1177722

Parameter	Units	30201833001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Ethylbenzene	ug/L	ND	20	20	18.9	18.1	95	90	70-120	5	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	18.4	18.3	92	91	71-129	1	
Methyl-tert-butyl ether	ug/L	ND	20	20	20.7	19.9	103	99	63-143	4	
Naphthalene	ug/L	ND	20	20	17.5	17.8	87	89	55-122	2	
Toluene	ug/L	ND	20	20	18.7	17.7	93	88	66-124	6	
Xylene (Total)	ug/L	ND	60	60	54.7	54.4	91	91	68-123	0	
1,2-Dichloroethane-d4 (S)	%						103	104	77-126		
4-Bromofluorobenzene (S)	%						100	99	81-119		
Dibromofluoromethane (S)	%						100	99	70-130		
Toluene-d8 (S)	%						100	97	84-115		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: UPA Bradford 061
Pace Project No.: 30201724

QC Batch: 239820 Analysis Method: EPA 1664A
QC Batch Method: EPA 1664A Analysis Description: 1664 HEM, Oil and Grease
Associated Lab Samples: 30201724001, 30201724002

METHOD BLANK: 1178299 Matrix: Water
Associated Lab Samples: 30201724001, 30201724002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	11/10/16 07:30	M5

METHOD BLANK: 1178301 Matrix: Water
Associated Lab Samples: 30201724001, 30201724002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	11/10/16 07:30	M5

LABORATORY CONTROL SAMPLE: 1178300

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	42.1	39.9	95	78-114	M5

LABORATORY CONTROL SAMPLE: 1178302

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	42.1	37.9	90	78-114	M5

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: UPA Bradford 061
Pace Project No.: 30201724

QC Batch: 240050
QC Batch Method: EPA 335.4
Analysis Method: EPA 335.4
Analysis Description: 335.4 Cyanide, Total
Associated Lab Samples: 30201724001, 30201724002

METHOD BLANK: 1179737 Matrix: Water
Associated Lab Samples: 30201724001, 30201724002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.010	11/11/16 21:32	

LABORATORY CONTROL SAMPLE: 1179738

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	.2	0.20	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1179739 1179740

Parameter	Units	30201724001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Cyanide	mg/L	ND	.1	.1	0.10	0.10	100	100	90-110	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: UPA Bradford 061
Pace Project No.: 30201724

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: 239820

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1c	Surrogate recovery outside laboratory control limits due to matrix interferences (high levels of non-target analytes present).
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M5	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford 061
Pace Project No.: 30201724

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30201724001	**Effluent**	EPA 200.7	239621	EPA 200.7	239707
30201724002	**Influent**	EPA 200.7	239621	EPA 200.7	239707
30201724001	**Effluent**	EPA 245.1	239686	EPA 245.1	239749
30201724002	**Influent**	EPA 245.1	239686	EPA 245.1	239749
30201724001	**Effluent**	EPA 8260B	239584		
30201724002	**Influent**	EPA 8260B	239584		
30201724001	**Effluent**	EPA 1664A	239820		
30201724002	**Influent**	EPA 1664A	239820		
30201724001	**Effluent**	EPA 335.4	240050	EPA 335.4	240103
30201724002	**Influent**	EPA 335.4	240050	EPA 335.4	240103

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

8093 9580 3650

Page: 1 of 1

2080109

Section A
Required Client Information:

Company:	GES
Address:	[illegible]
	[illegible]
Email To:	[illegible]
Phone: 800-267-[illegible]	Fax: [illegible]
Requested Due Date/TAT:	5 DAY

Section B
Required Project Information:

Report To:	Joe Hinkle
Copy To:	Joe Hinkle
Purchase Order No.:	
Project Name:	[illegible] Bradford 061
Project Number:	

Section C
Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ________

Site Location STATE: PA

Requested Analysis Filtered (Y/N)

WO#:30201724

30201724

Section D
Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes
MATRIX / CODE

Matrix	Code
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	[illegible]	Total [illegible]	Oil & Grease	Cyanide	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Effluent	WT	G			11-4-16	1230		7										X	X	X	X		001
2	Influent	WT	G			11-4-16	1240		7										X	X	X	X		002
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature] / GES	11-4-16	1600	[signature]	11-4-16	1600				
				[signature]	11/5/16	0945	3.2	Y	Y	Y
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Robert [illegible] III

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11-4-16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt Pittsburgh

30201724

Pace Analytical

Client Name: GES Project #

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 8039583650

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Thermometer Used 6 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 3.4 °C Correction Factor: -0.2 °C Final Temp: 3.2 °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 11/5/16

Comments:	Yes	No	N/A	
Chain of Custody Present:	X			1.
Chain of Custody Filled Out:	X			2.
Chain of Custody Relinquished:	X			3.
Sampler Name & Signature on COC:	X			4.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: WT	X			5.
Samples Arrived within Hold Time:	X			6.
Short Hold Time Analysis (<72hr remaining):		X		7.
Rush Turn Around Time Requested:	X			8.
Sufficient Volume:	X			9.
Correct Containers Used: -Pace Containers Used:	X X			10.
Containers Intact:	X			11.
Filtered volume received for Dissolved tests			X	12.
All containers needing preservation have been checked. All containers needing preservation are found to be in compliance with EPA recommendation.	X X			13.
exceptions: (VOA), coliform, TOC, (O&G), Phenolics				Initial when completed: Date/time of preservation; Lot # of added preservative
Headspace in VOA Vials (>6mm):		X		14.
Trip Blank Present:		X		15.
Trip Blank Custody Seals Present			X	
Rad Aqueous Samples Screened > 0.5 mrem/hr			X	Initial when completed: Date:

Client Notification/ Resolution:

Person Contacted: Date/Time: Contacted By:

Comments/ Resolution:

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

November 29, 2016

Mr. Joe Hinkle
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: UPA Bradford M-061
Pace Project No.: 30203276

Dear Mr. Hinkle:
Enclosed are the analytical results for sample(s) received by the laboratory on November 21, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rachel D Christner

Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental Services, Inc.
Lauren Bidwell, Groundwater & Environmental Services, Inc.
Ms. Debbie Burgan, Groundwater & Environmental Services, Inc.
Mr. Justin Paul, Groundwater & Environmental Sesrvices, Inc.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: UPA Bradford M-061
Pace Project No.: 30203276

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: UPA Bradford M-061
Pace Project No.: 30203276

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30203276001	Effluent	EPA 524.2	JLR	12	PASI-O

Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30203276

Sample: Effluent **Lab ID: 30203276001** Collected: 11/17/16 14:00 Received: 11/21/16 14:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
524.2 MSV	Analytical Method: EPA 524.2							
Benzene	ND	ug/L	0.50	1		11/28/16 21:13	71-43-2	
Ethylbenzene	ND	ug/L	0.50	1		11/28/16 21:13	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		11/28/16 21:13	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		11/28/16 21:13	1634-04-4	
Naphthalene	ND	ug/L	0.50	1		11/28/16 21:13	91-20-3	
Toluene	ND	ug/L	0.50	1		11/28/16 21:13	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		11/28/16 21:13	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		11/28/16 21:13	108-67-8	
Xylene (Total)	ND	ug/L	0.50	1		11/28/16 21:13	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	93	%	70-130	1		11/28/16 21:13	460-00-4	
Toluene-d8 (S)	105	%	70-130	1		11/28/16 21:13	2037-26-5	
1,2-Dichloroethane-d4 (S)	113	%	70-130	1		11/28/16 21:13	17060-07-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30203276

QC Batch: 334628
QC Batch Method: EPA 524.2
Analysis Method: EPA 524.2
Analysis Description: 524.2 MSV
Associated Lab Samples: 30203276001

METHOD BLANK: 1792027
Matrix: Water
Associated Lab Samples: 30203276001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	0.50	11/28/16 13:25	
1,3,5-Trimethylbenzene	ug/L	ND	0.50	11/28/16 13:25	
Benzene	ug/L	ND	0.50	11/28/16 13:25	
Ethylbenzene	ug/L	ND	0.50	11/28/16 13:25	
Isopropylbenzene (Cumene)	ug/L	ND	0.50	11/28/16 13:25	
Methyl-tert-butyl ether	ug/L	ND	0.50	11/28/16 13:25	
Naphthalene	ug/L	ND	0.50	11/28/16 13:25	
Toluene	ug/L	ND	0.50	11/28/16 13:25	
Xylene (Total)	ug/L	ND	0.50	11/28/16 13:25	
1,2-Dichloroethane-d4 (S)	%	103	70-130	11/28/16 13:25	
4-Bromofluorobenzene (S)	%	94	70-130	11/28/16 13:25	
Toluene-d8 (S)	%	104	70-130	11/28/16 13:25	

LABORATORY CONTROL SAMPLE & LCSD: 1792028 1792029

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	40	37.2	38.4	93	96	70-130	3	40	
1,3,5-Trimethylbenzene	ug/L	40	37.3	38.4	93	96	70-130	3	40	
Benzene	ug/L	40	36.1	36.7	90	92	70-130	2	40	
Ethylbenzene	ug/L	40	38.5	40.7	96	102	70-130	5	40	
Isopropylbenzene (Cumene)	ug/L	40	37.4	37.8	94	95	70-130	1	40	
Methyl-tert-butyl ether	ug/L	40	34.0	35.3	85	88	70-130	4	40	
Naphthalene	ug/L	40	31.8	35.4	79	89	70-130	11	40	
Toluene	ug/L	40	36.2	36.9	90	92	70-130	2	40	
Xylene (Total)	ug/L	120	113	116	94	97	70-130	3	40	
1,2-Dichloroethane-d4 (S)	%				97	99	70-130			
4-Bromofluorobenzene (S)	%				104	106	70-130			
Toluene-d8 (S)	%				105	105	70-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: UPA Bradford M-061
Pace Project No.: 30203276

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M-061
Pace Project No.: 30203276

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30203276001	**Effluent**	EPA 524.2	334628		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

WO#: 30203276

30203276

Page: 1 of 1

2079827

Section A Required Client Information:

Company:	GES
Address:	301 Commerce Park DR
	Cranberry Twp PA 16066
Email To:	JWinkle@GESonline.Com
Phone:	8006722549
Fax:	
Requested Due Date/TAT:	3 Day

Section B Required Project Information:

Report To:	Joe Winkle
Copy To:	↓
Purchase Order No.:	0824975-02-221-1400
Project Name:	UPA Bradford M-061
Project Number:	

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ______

Site Location STATE: X

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	TIME	COMPOSITE END/GRAB DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	BTEX + MTBE	Cumene Naphthalene	1,2,4-TMB 1,3,5-TMB	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	EFFluent	WT	G			11/17/16	1400		3				X						X	X	X		001
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
~~TPP Detection Limit and~~	[signature] / GES	11-21-16	0745	To GES Sample Area	11/21/16	0745				
Please use	[signature] / GES			[signature] Pace	11-21-16	10:38				agr 11-21-16
Method 524	[signature] Pace	11-21-16	2220	Ashley Rowe / Pace	11-21-16	1420	0.1	Y	~~N/A~~	Y
.5 PPB Detection limit										

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: James R. Alesworth

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 11-17-16

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt Pittsburgh

Pace Analytical

Client Name: GES Project # 30203276

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Thermometer Used 6 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 0.3 °C Correction Factor: -0.2 °C Final Temp: 0.1 °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: UAH 11-21-16

UAH 11-21-16

Comments:	Yes	No	N/A	
Chain of Custody Present:	X			1.
Chain of Custody Filled Out:	X			2.
Chain of Custody Relinquished:	X			3.
Sampler Name & Signature on COC:	X			4.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: WT	X			5.
Samples Arrived within Hold Time:	X			6.
Short Hold Time Analysis (<72hr remaining):		X		7.
Rush Turn Around Time Requested:	X			8.
Sufficient Volume:	X			9.
Correct Containers Used:	X			10.
-Pace Containers Used:	X			
Containers Intact:	X			11.
Filtered volume received for Dissolved tests			X	12.
All containers needing preservation have been checked.			X	13.
All containers needing preservation are found to be in compliance with EPA recommendation.			X	
exceptions: (VOA,) coliform, TOC, O&G, Phenolics				Initial when completed: UAH Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):		X		14.
Trip Blank Present:		X		15.
Trip Blank Custody Seals Present			X	
Rad Aqueous Samples Screened > 0.5 mrem/hr			X	Initial when completed: Date:

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

WO# : 35279189

35279189

Pace Analytical®
www.pacelabs.com

Workorder: 30203276 **Workorder Name:** UPA Bradford M-061 **Owner Received Date:** 11/21/2016 **Results Requested By:** 11/28/2016

Report To	Subcontract To
Rachel Christner Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3,4 Greensburg, PA 15601 Phone (724)850-5600	Pace Analytical Ormond Beach 8 East Tower Circle Ormond Beach, FL 32174 Phone (386)672-5668

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCL	* BTEX, MTBE, Cumene, TMB's	and Naphthalene, 524.2 /	* See Special Requirements in	the Comments Box Below.	LAB USE ONLY
1	Effluent	PS	11/17/2016 14:00	30203276001	Water	1	X				
2											
3											
4											
5											

Transfers	Released By	Date/Time	Received By	Date/Time
1	Pace	11/22/16 1600	Pace	11.23.16 1120
2				
3				

Comments

* Special Requirements : Detection Limit - 0.5 ppb

Cooler Temperature on Receipt 2.0 °C T2604 **Custody Seal** Y or N **Received on Ice** (Y) or N **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: August 10, 2016
	Document No.: F-FL-C-007 rev. 10	Issuing Authority: Pace Florida Quality Office

Samp **WO#: 35279189**

Project #
Project Manager: PM: SMM **Due Date:** 12/06/16
Client: CLIENT: PACPIT

Date and Initials of person:
Examining contents:_____
Label:_____
Deliver:_____
pH:_____

Thermometer Used: T269 Date: 11/23/16 Time 1120 Initials: RJ

Samples shorted to lab (If Yes, complete) Shorted Date:_____ Shorted Time:_____ Qty:_____

Cooler #1 Temp.°C 0.4 (Visual) +0.2 (Correction Factor) 0.6 (Actual) ☐ Samples on ice, cooling process has begun
Cooler #2 Temp.°C_____ (Visual) _____ (Correction Factor) _____ (Actual) ☐ Samples on ice, cooling process has begun
Cooler #3 Temp.°C_____ (Visual) _____ (Correction Factor) _____ (Actual) ☐ Samples on ice, cooling process has begun
Cooler #4 Temp.°C_____ (Visual) _____ (Correction Factor) _____ (Actual) ☐ Samples on ice, cooling process has begun
Cooler #5 Temp.°C_____ (Visual) _____ (Correction Factor) _____ (Actual) ☐ Samples on ice, cooling process has begun
Cooler #6 Temp.°C_____ (Visual) _____ (Correction Factor) _____ (Actual) ☐ Samples on ice, cooling process has begun

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other_____
Shipping Method: ☐ First Overnight ☑ Priority Overnight ☐ Standard Overnight ☐ Ground ☐ Other_____
Billing: ☐ Recipient ☑ Sender ☐ Third Party ☐ Unknown
Tracking # 760 2531 7016

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No **Seals intact:** ☐ Yes ☑ No Ice: (Wet) Blue None
Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other_____

		Comments:
Chain of Custody Present	☑Yes ☐No ☐N/A	
Chain of Custody Filled Out	☑Yes ☐No ☐N/A	
Relinquished Signature & Sampler Name COC	☐Yes ☐No ☐N/A	
Samples Arrived within Hold Time	☐Yes ☐No ☐N/A	
Rush TAT requested on COC	☐Yes ☑No ☐N/A	
Sufficient Volume	☑Yes ☐No ☐N/A	
Correct Containers Used	☑Yes ☐No ☐N/A	
Containers Intact	☑Yes ☐No ☐N/A	
Sample Labels match COC (sample IDs & date/time of collection)	☑Yes ☐No ☐N/A	
All containers needing acid/base preservation have been checked	☐Yes ☐No ☑N/A	Preservation Information:
All Containers needing preservation are found to be in compliance with EPA recommendation: Exceptions: VOA, Coliform, TOC, O&G, Carbamates	☐Yes ☐No ☑N/A	Preservative_____ Lot #/Trace #_____ Date_____ Time_____ Initials_____
Headspace in VOA Vials? (>6mm):	☐Yes ☑No ☐N/A	
Trip Blank Present:	☐Yes ☑No ☐N/A	

Client Notification/ Resolution:
Person Contacted:_____ Date/Time_____

Comments/ Resolution (use back for additional comments):_____

Project Manager Review:_____ Date:_____

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

December 19, 2016

Mr. Joe Hinkle
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: UPA Bradford 061
Pace Project No.: 30204761

Dear Mr. Hinkle:
Enclosed are the analytical results for sample(s) received by the laboratory on December 08, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rachel D Christner

Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental Services, Inc.
Lauren Bidwell, Groundwater & Environmental Services, Inc.
Mr. Justin Paul, Groundwater & Environmental Sesrvices, Inc.

Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: UPA Bradford 061
Pace Project No.: 30204761

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: UPA Bradford 061
Pace Project No.: 30204761

Sample: Influent **Lab ID: 30204761001** Collected: 12/07/16 08:10 Received: 12/08/16 15:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**67.6**	ug/L	1.0	1		12/16/16 09:34	71-43-2	
Ethylbenzene	**76.2**	ug/L	1.0	1		12/16/16 09:34	100-41-4	
Isopropylbenzene (Cumene)	**2.6**	ug/L	1.0	1		12/16/16 09:34	98-82-8	
Methyl-tert-butyl ether	**3.9**	ug/L	1.0	1		12/16/16 09:34	1634-04-4	
Naphthalene	**28.8**	ug/L	2.0	1		12/16/16 09:34	91-20-3	
Toluene	**173**	ug/L	1.0	1		12/16/16 09:34	108-88-3	
1,2,4-Trimethylbenzene	**182**	ug/L	1.0	1		12/16/16 09:34	95-63-6	
1,3,5-Trimethylbenzene	**73.6**	ug/L	1.0	1		12/16/16 09:34	108-67-8	
Xylene (Total)	**814**	ug/L	3.0	1		12/16/16 09:34	1330-20-7	
Surrogates								
Toluene-d8 (S)	97	%	84-115	1		12/16/16 09:34	2037-26-5	
4-Bromofluorobenzene (S)	102	%	81-119	1		12/16/16 09:34	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	77-126	1		12/16/16 09:34	17060-07-0	
Dibromofluoromethane (S)	95	%	70-130	1		12/16/16 09:34	1868-53-7	

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QUALITY CONTROL DATA

Project: UPA Bradford 061
Pace Project No.: 30204761

QC Batch: 243575
QC Batch Method: EPA 8260B
Analysis Method: EPA 8260B
Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 30204761001

METHOD BLANK: 1197997
Matrix: Water
Associated Lab Samples: 30204761001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	12/16/16 01:09	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	12/16/16 01:09	
Benzene	ug/L	ND	1.0	12/16/16 01:09	
Ethylbenzene	ug/L	ND	1.0	12/16/16 01:09	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	12/16/16 01:09	
Methyl-tert-butyl ether	ug/L	ND	1.0	12/16/16 01:09	
Naphthalene	ug/L	ND	2.0	12/16/16 01:09	
Toluene	ug/L	ND	1.0	12/16/16 01:09	
Xylene (Total)	ug/L	ND	3.0	12/16/16 01:09	
1,2-Dichloroethane-d4 (S)	%	104	77-126	12/16/16 01:09	
4-Bromofluorobenzene (S)	%	95	81-119	12/16/16 01:09	
Dibromofluoromethane (S)	%	94	70-130	12/16/16 01:09	
Toluene-d8 (S)	%	92	84-115	12/16/16 01:09	

LABORATORY CONTROL SAMPLE: 1197998

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.4	102	75-128	
1,3,5-Trimethylbenzene	ug/L	20	20.4	102	74-125	
Benzene	ug/L	20	19.7	98	69-115	
Ethylbenzene	ug/L	20	19.8	99	71-116	
Isopropylbenzene (Cumene)	ug/L	20	20.3	101	79-121	
Methyl-tert-butyl ether	ug/L	20	23.4	117	83-140	
Naphthalene	ug/L	20	21.2	106	64-140	
Toluene	ug/L	20	19.9	99	70-115	
Xylene (Total)	ug/L	60	61.1	102	73-118	
1,2-Dichloroethane-d4 (S)	%			105	77-126	
4-Bromofluorobenzene (S)	%			98	81-119	
Dibromofluoromethane (S)	%			98	70-130	
Toluene-d8 (S)	%			102	84-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1199870 1199871

Parameter	Units	30204374001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L				23.1	23.4				1	
1,3,5-Trimethylbenzene	ug/L				22.8	23.6				3	
Benzene	ug/L	ND	20	20	24.8	25.4	124	127	63-123	2	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: UPA Bradford 061
Pace Project No.: 30204761

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1199870 1199871

Parameter	Units	30204374001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Ethylbenzene	ug/L				24.1	24.8				3	
Isopropylbenzene (Cumene)	ug/L				23.0	23.5				2	
Methyl-tert-butyl ether	ug/L				21.1	22.9				8	
Naphthalene	ug/L	ND	20	20	22.0	23.6	110	118	55-122	7	
Toluene	ug/L				25.2	26.0				3	
Xylene (Total)	ug/L				72.6	74.6				3	
1,2-Dichloroethane-d4 (S)	%						84	89	77-126		
4-Bromofluorobenzene (S)	%						103	103	81-119		
Dibromofluoromethane (S)	%						94	96	70-130		
Toluene-d8 (S)	%						102	104	84-115		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: UPA Bradford 061
Pace Project No.: 30204761

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
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(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford 061
Pace Project No.: 30204761

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30204761001	**Influent**	EPA 8260B	243575		

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WO#:30204761

30204761

Request Document

...ds must be completed accurately.

Page: 1 of 1

2062417

Section A
Required Client Information:

Company:	GES
Address:	Commerce Park Drive
	Cranberry Twp PA 16066
Email To:	jhinkle@gesonline.com
Phone: 800-267-2549	Fax: 724-779-4617
Requested Due Date/TAT:	std

Section B
Required Project Information:

Report To:	Joe Hinkle
Copy To:	Joe Hinkle
~~Purchase Order No.:~~	ORG# 1407
Project Name:	PA Bradford 061
Project Number:	0704975-15220-933333

Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ______

Site Location STATE: PA

Section D
Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes	MATRIX / CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Burbank(?)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Influent	WT	G			12-7-16	0810		3				x						X		001
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
100% detection limit	[signature] / GES	12-8-16	0600	Sample Dept / GES	12-8-16	0600				
Ervis EDD required	[signature]			[signature] Pace	12-8-16	11:20				
	[signature] Pace	12-8-16	3:40	[signature]	12/8/16	1540	5.9	Y	—	Y
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: [handwritten name]

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 12-7-16

Page 8 of 9

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt Pittsburgh

Pace Analytical

Client Name: GES Project # 30204761

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Thermometer Used 6 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 5.7 °C Correction Factor: +0.2 °C Final Temp: 5.9 °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: BTM 12.8.16

Comments:	Yes	No	N/A	
Chain of Custody Present:	X			1.
Chain of Custody Filled Out:	X			2.
Chain of Custody Relinquished:	X			3.
Sampler Name & Signature on COC:	X			4.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: WT	X			5.
Samples Arrived within Hold Time:	X			6.
Short Hold Time Analysis (<72hr remaining):		X		7.
Rush Turn Around Time Requested:		X		8.
Sufficient Volume:	X			9.
Correct Containers Used: -Pace Containers Used:	X X			10.
Containers Intact:	X			11.
Filtered volume received for Dissolved tests			X	12.
All containers needing preservation have been checked.			X	13.
All containers needing preservation are found to be in compliance with EPA recommendation.			X	
exceptions: (VOA), coliform, TOC, O&G, Phenolics				Initial when completed BTM Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):		X		14.
Trip Blank Present:		X		15.
Trip Blank Custody Seals Present			X	
Rad Aqueous Samples Screened > 0.5 mrem/hr			X	Initial when completed: BTM Date: 12.8.16

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

January 09, 2017

Mr. Joe Hinkle
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: UPA Bradford M-061
Pace Project No.: 30206833

Dear Mr. Hinkle:
Enclosed are the analytical results for sample(s) received by the laboratory on December 29, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rachel D Christner

Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental Services, Inc.
Lauren Bidwell, Groundwater & Environmental Services, Inc.
Ms. Debbie Burgan, Groundwater & Environmental Services, Inc.
Mr. Justin Paul, Groundwater & Environmental Sesrvices, Inc.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: UPA Bradford M-061
Pace Project No.: 30206833

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: UPA Bradford M-061
Pace Project No.: 30206833

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30206833001	**Effluent**	EPA 524.2	JLR	11	PASI-O

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30206833

Sample: Effluent **Lab ID: 30206833001** Collected: 12/26/16 16:10 Received: 12/29/16 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
524.2 MSV	Analytical Method: EPA 524.2							
Benzene	ND	ug/L	0.50	1		01/05/17 03:54	71-43-2	
Ethylbenzene	ND	ug/L	0.50	1		01/05/17 03:54	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		01/05/17 03:54	98-82-8	
Naphthalene	ND	ug/L	0.50	1		01/05/17 03:54	91-20-3	
Toluene	ND	ug/L	0.50	1		01/05/17 03:54	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		01/05/17 03:54	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		01/05/17 03:54	108-67-8	
Xylene (Total)	ND	ug/L	0.50	1		01/05/17 03:54	1330-20-7	
Surrogates								
4-Bromofluorobenzene (S)	95	%	70-130	1		01/05/17 03:54	460-00-4	
Toluene-d8 (S)	103	%	70-130	1		01/05/17 03:54	2037-26-5	
1,2-Dichloroethane-d4 (S)	103	%	70-130	1		01/05/17 03:54	17060-07-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30206833

QC Batch: 342358
QC Batch Method: EPA 524.2
Analysis Method: EPA 524.2
Analysis Description: 524.2 MSV
Associated Lab Samples: 30206833001

METHOD BLANK: 1836308
Matrix: Water
Associated Lab Samples: 30206833001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	0.50	01/05/17 00:54	
1,3,5-Trimethylbenzene	ug/L	ND	0.50	01/05/17 00:54	
Benzene	ug/L	ND	0.50	01/05/17 00:54	
Ethylbenzene	ug/L	ND	0.50	01/05/17 00:54	
Isopropylbenzene (Cumene)	ug/L	ND	0.50	01/05/17 00:54	
Naphthalene	ug/L	ND	0.50	01/05/17 00:54	
Toluene	ug/L	ND	0.50	01/05/17 00:54	
Xylene (Total)	ug/L	ND	0.50	01/05/17 00:54	
1,2-Dichloroethane-d4 (S)	%	100	70-130	01/05/17 00:54	
4-Bromofluorobenzene (S)	%	91	70-130	01/05/17 00:54	
Toluene-d8 (S)	%	102	70-130	01/05/17 00:54	

LABORATORY CONTROL SAMPLE & LCSD: 1836309 1836310

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.4	21.4	102	107	70-130	5	40	
1,3,5-Trimethylbenzene	ug/L	20	20.7	22.1	103	111	70-130	7	40	
Benzene	ug/L	20	20.7	21.7	104	109	70-130	5	40	
Ethylbenzene	ug/L	20	20.1	20.7	101	104	70-130	3	40	
Isopropylbenzene (Cumene)	ug/L	20	18.9	19.5	95	97	70-130	3	40	
Naphthalene	ug/L	20	18.6	24.2	93	121	70-130	26	40	
Toluene	ug/L	20	18.7	18.8	93	94	70-130	1	40	
Xylene (Total)	ug/L	60	62.8	65.2	105	109	70-130	4	40	
1,2-Dichloroethane-d4 (S)	%				104	101	70-130			
4-Bromofluorobenzene (S)	%				105	104	70-130			
Toluene-d8 (S)	%				102	102	70-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: UPA Bradford M-061
Pace Project No.: 30206833

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M-061
Pace Project No.: 30206833

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30206833001	**Effluent**	EPA 524.2	342358		

Pace Analytical®
www.pacelabs.com

Ch WO#:30206833 Document
The pleted accurately.

30206833

Page: 1 of 1

1702843

Section A Required Client Information:

Company:	GES, Inc.
Address:	301 Commerce Park Dr.
	Cranberry Twp., PA 160666
Email To:	jhinkle@gesonline.com
Phone:	800-267-2549
Fax:	724-779-4617
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Joe Hinkle
Copy To:	Joan Amadeo
	jamadeo@gesonline.com
Purchase Order No.:	
Project Name:	UPA Bradford M-061
Project Number:	0704975/06/160 org#1407

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: PA

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes — MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test ↓: Method 524 PA Nnn Unleaded Shortlist	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Effluent		G			12-26 (2016)	1610		3				X						X		001
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
5 ppb Detection Limit	Jason DH / GES, Inc.	12/28/16	1530	Alynda K. Mushrony Pace	12/29/16	1020	2.2	Y	Y	Y
Method 524										
EQUIS EDD Required										

Fed Ex Tracking #: 8101 1627 1140

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jason Dheel

SIGNATURE of SAMPLER: Jason DH DATE Signed (MM/DD/YY): 12/26/16

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt Pittsburgh

Pace Analytical

Client Name: GES Project # 30206833

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 8101 1027 1140

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Thermometer Used 6 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 2.0 °C Correction Factor: +0.2 °C Final Temp: 2.2 °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KM, ARM 12/29/16

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1. 12/29/16
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC:	✓			5. VOA analysis on VOAs says 8260.
-Includes date/time/ID Matrix: WT ARM 12/29/16				Method on COC is 524
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used:	✓			
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Organic Samples checked for dechlorination:			✓	13.
Filtered volume received for Dissolved tests			✓	14.
All containers have been checked for preservation.			✓	15.
All containers needing preservation are found to be in compliance with EPA recommendation.			✓	
exceptions: (VOA), coliform, TOC, O&G, Phenolics				Initial when completed: ARM Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):		✓		16.
Trip Blank Present:		✓		17.
Trip Blank Custody Seals Present			✓	
Rad Aqueous Samples Screened > 0.5 mrem/hr			✓	Initial when completed: ARM Date:

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Chain of Custody

WO# : 35286157

35286157

Pace Analytical®
www.pacelabs.com

Workorder: 30206833 **Workorder Name:** UPA Bradford M-061 **Owner Received Date:** 12/29/2016 **Results Requested By:** 1/13/2017

Report To	Subcontract To
Rachel Christner Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3,4 Greensburg, PA 15601 Phone (724)850-5600	Pace Analytical Ormond Beach 8 East Tower Circle Ormond Beach, FL 32174 Phone (386)672-5668

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCL	Requested Analysis: PA Unleaded New Short List,	Requested Analysis: 524.2	LAB USE ONLY
1	Effluent	PS	12/26/2016 16:10	30206833001	Water	1	X		
2									
3									
4									
5									

Transfers	Released By	Date/Time	Received By	Date/Time
1	Karen Hill	12-29-16 1620	[illegible] F-776	12/30/16 11:55
2				
3				

Comments

NOTE : See Client COC

Cooler Temperature on Receipt 4 °C | **Custody Seal** Y or (N) | **Received on Ice** (Y) or N | **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

Pace Analytical
www.pacelabs.com

Cl The WO#:30206833

30206833

Document pleted accurately.

Page: 1 of 1

1702843

Section A Required Client Information:

Company:	GES, Inc.
Address:	301 Commerce Park Dr.
	Cranberry Twp., PA 160666
Email To:	jhinkle@gesonline.com
Phone:	800-267-2549
Fax:	724-779-4617
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Joe Hinkle
Copy To:	Joan Amadeo
	jamadeo@gesonline.com
Purchase Order No.:	
Project Name:	UPA Bradford M-061
Project Number:	0704975/06/160 org#1407

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: PA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Method 524 PA New Unloaded Shortlist	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Effluent		G			12-26 2016	1610		3				X						X		001
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
5 ppb Detection Limit Method 524	Jason Dheel / GES, Inc.	12/28/16	1530	Alyn K. Muchony Pace	12/29/16	1020	2.2	Y	Y	Y
EQUIS EDD Required										

FedEx Tracking #: 8101 1627 1140

ORIGINAL

SAMPLER NAME AND SIGNATURE					
PRINT Name of SAMPLER:	Jason Dheel	DATE Signed (MM/DD/YY):	12/26/16	Temp in °C	Received on Ice (Y/N) / Custody Sealed Cooler (Y/N) / Samples Intact (Y/N)
SIGNATURE of SAMPLER:	Jason Dheel				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical Florida Laboratory	Document Name: Sample Condition Upon Receipt Form	Document Revised: August 10, 2016
	Document No.: F-FL-C-007 rev. 10	Issuing Authority: Pace Florida Quality Office

Sar

WO# : 35286157

PM: SMM **Due Date: 01/16/17**

CLIENT: PACPIT

Project #
Project Manager:
Client:

Date and Initials of person:
Examining contents: MA
Label:
Deliver: MA
pH:

Thermometer Used: T276 Date: 12/30/16 Time: 1155 Initials: MA

Samples shorted to lab (If Yes, complete) Shorted Date: _____ Shorted Time: _____ Qty: _____

Cooler #1 Temp.°C	0.3 **(Visual)**	0.1 **(Correction Factor)**	0.4 **(Actual)**	☐ Samples on ice, cooling process has begun
Cooler #2 Temp.°C	_____ **(Visual)**	_____ **(Correction Factor)**	_____ **(Actual)**	☐ Samples on ice, cooling process has begun
Cooler #3 Temp.°C	_____ **(Visual)**	_____ **(Correction Factor)**	_____ **(Actual)**	☐ Samples on ice, cooling process has begun
Cooler #4 Temp.°C	_____ **(Visual)**	_____ **(Correction Factor)**	_____ **(Actual)**	☐ Samples on ice, cooling process has begun
Cooler #5 Temp.°C	_____ **(Visual)**	_____ **(Correction Factor)**	_____ **(Actual)**	☐ Samples on ice, cooling process has begun
Cooler #6 Temp.°C	_____ **(Visual)**	_____ **(Correction Factor)**	_____ **(Actual)**	☐ Samples on ice, cooling process has begun

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other_____

Shipping Method: ☐ First Overnight ☑ Priority Overnight ☐ Standard Overnight ☐ Ground ☐ Other_____

Billing: ☐ Recipient ☑ Sender ☐ Third Party ☐ Unknown

Tracking # 706025321653

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No **Seals intact:** ☐ Yes ☑ No **Ice:** ☑ Wet ☐ Blue ☐ None

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

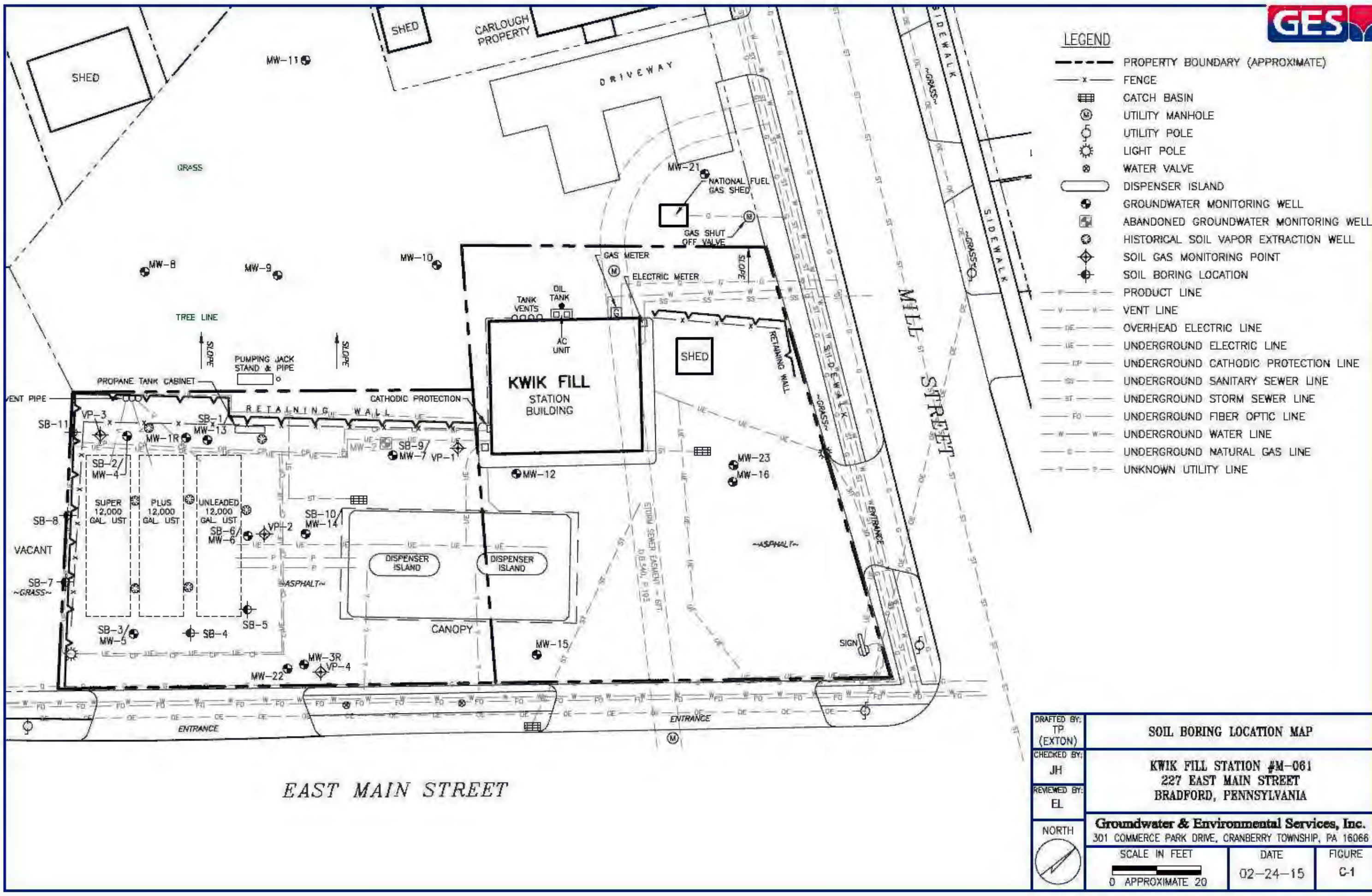
		Comments:
Chain of Custody Present	☑Yes ☐ No ☐N/A	
Chain of Custody Filled Out	☑Yes ☐ No ☐N/A	
Relinquished Signature & Sampler Name COC	☑Yes ☐ No ☐N/A	
Samples Arrived within Hold Time	☑Yes ☐ No ☐N/A	
Rush TAT requested on COC	☐Yes ☑ No ☐N/A	
Sufficient Volume	☑Yes ☐ No ☐N/A	
Correct Containers Used	☑Yes ☐ No ☐N/A	
Containers Intact	☑Yes ☐ No ☐N/A	
Sample Labels match COC (sample IDs & date/time of collection)	☑Yes ☐ No ☐N/A	
All containers needing acid/base preservation have been checked. All Containers needing preservation are found to be in compliance with EPA recommendation: Exceptions: VOA, Coliform, TOC, O&G, Carbamates	☐Yes ☐ No ☐N/A ☐Yes ☐ No ☐N/A	Preservation Information: Preservative:_____ Lot #/Trace #:_____ Date:_____ Time:_____ Initials:_____
Headspace in VOA Vials? (>6mm):	☐Yes ☐ No ☐N/A	
Trip Blank Present:	☐Yes ☐ No ☐N/A	

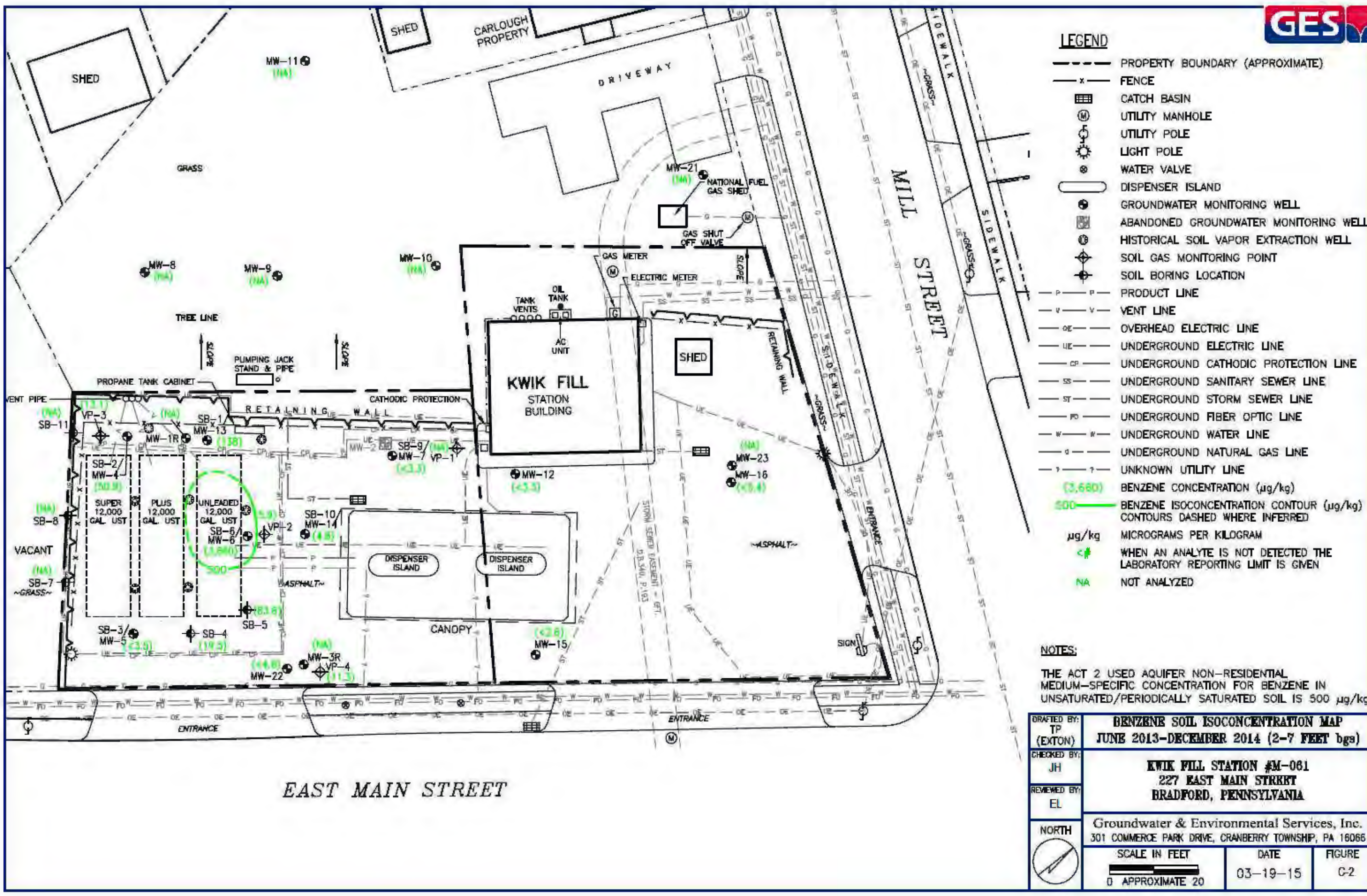
Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

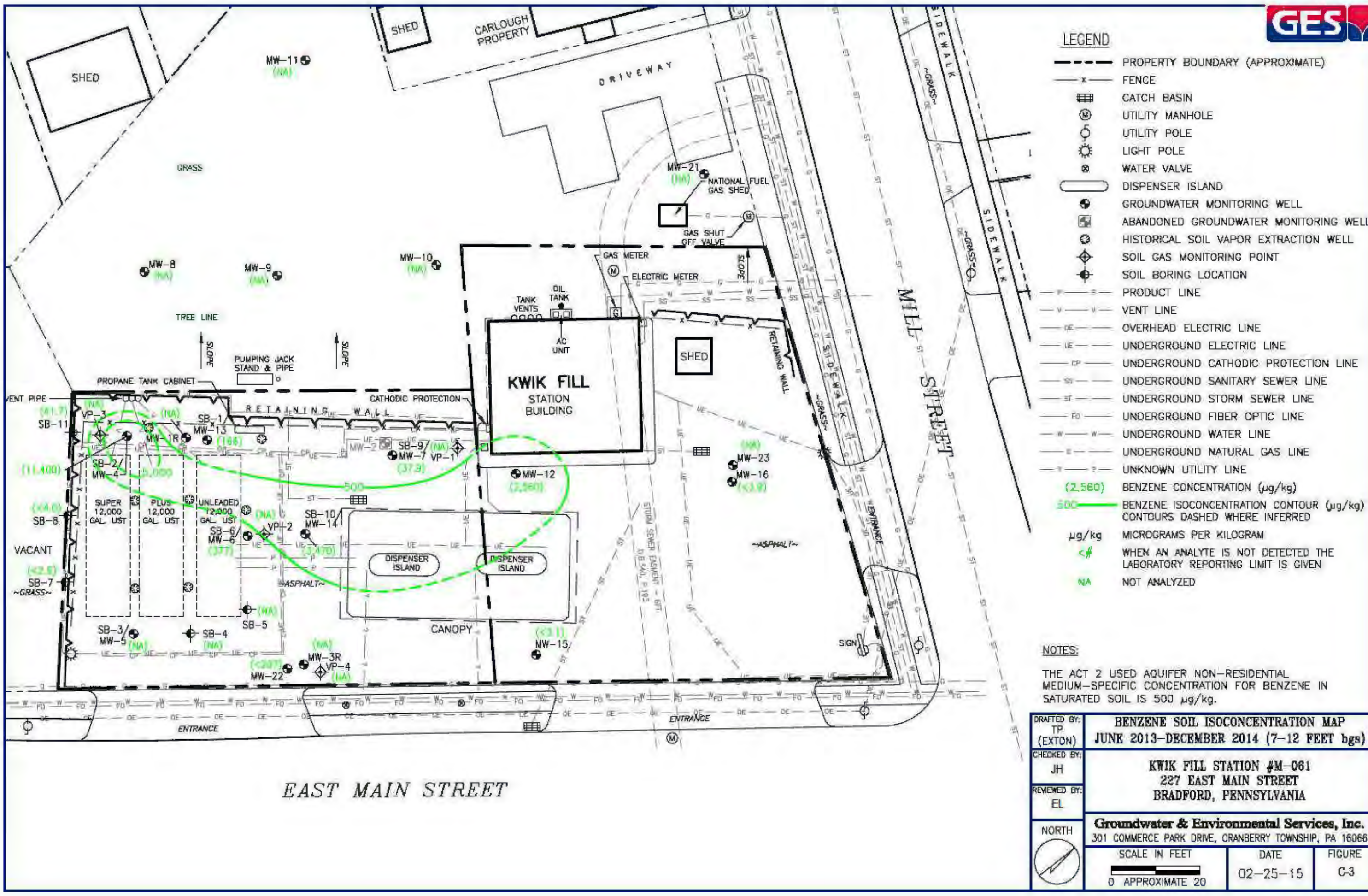
Comments/ Resolution (use back for additional comments): _____

Project Manager Review: _____ Date: _____

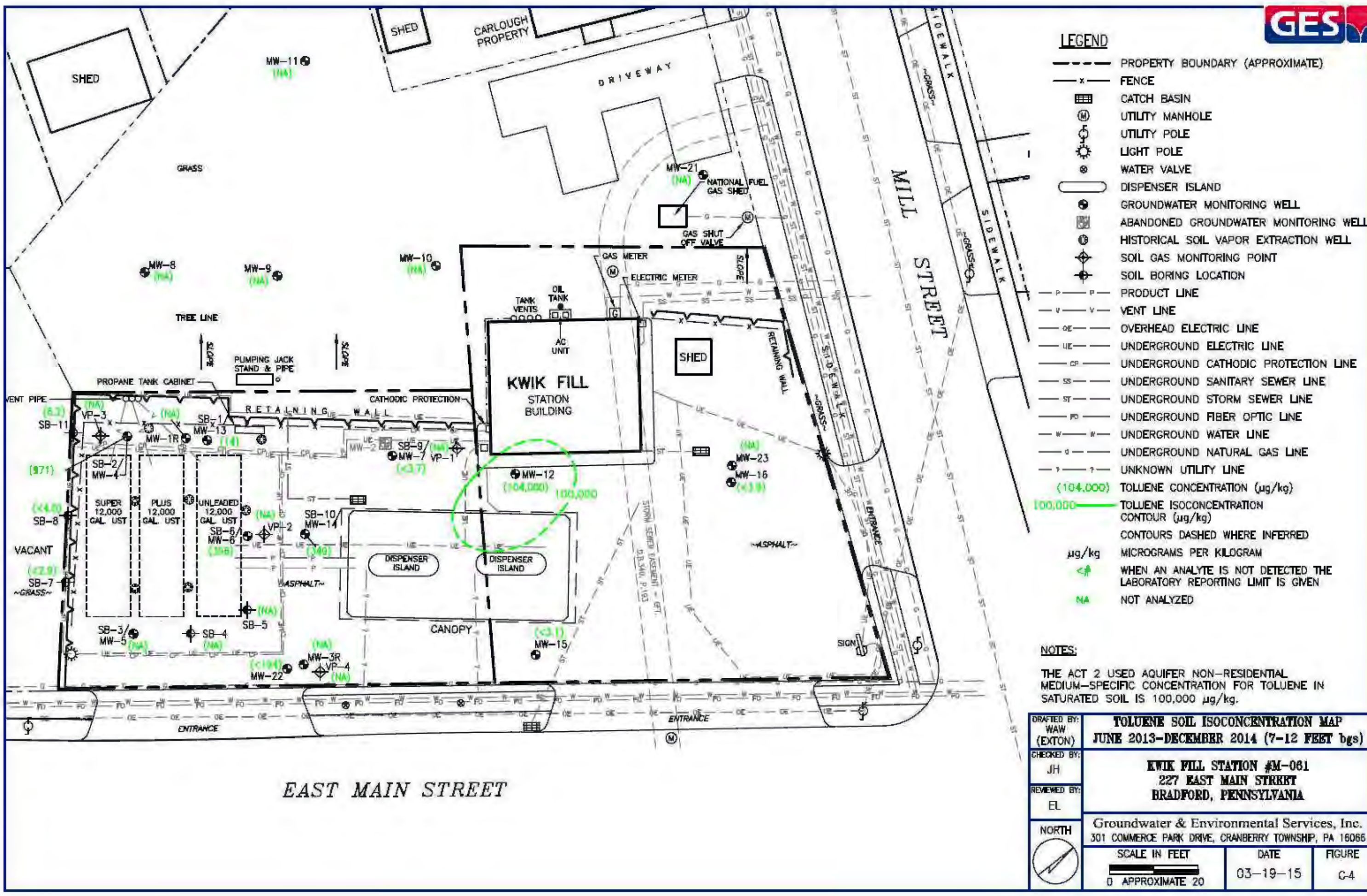

GES
LEGEND
PROPERTY BOUNDARY (APPROXIMATE)
FENCE
CATCH BASIN
UTILITY MANHOLE
UTILITY POLE
LIGHT POLE
WATER VALVE
DISPENSER ISLAND
GROUNDWATER MONITORING WELL
ABANDONED GROUNDWATER MONITORING WELL
HISTORICAL SOIL VAPOR EXTRACTION WELL
SOIL GAS MONITORING POINT
SOIL BORING LOCATION
PRODUCT LINE
VENT LINE
OVERHEAD ELECTRIC LINE
UNDERGROUND ELECTRIC LINE
UNDERGROUND CATHODIC PROTECTION LINE
UNDERGROUND SANITARY SEWER LINE
UNDERGROUND STORM SEWER LINE
UNDERGROUND FIBER OPTIC LINE
UNDERGROUND WATER LINE
UNDERGROUND NATURAL GAS LINE
UNKNOWN UTILITY LINE
SHED
CARLOUGH PROPERTY
DRIVEWAY
MW-11
GRASS
MW-21
NATIONAL FUEL GAS SHED
GAS SHUT OFF VALVE
MW-8
MW-9
MW-10
GAS METER
ELECTRIC METER
TANK VENTS
OIL TANK
AC UNIT
TREE LINE
SLOPE
PUMPING JACK STAND & PIPE
PROPANE TANK CABINET
KWIK FILL STATION BUILDING
RETAINING WALL
CATHODIC PROTECTION
VENT PIPE
SB-11
VP-3
SB-1
MW-13
MW-1R
SB-9
MW-7
VP-1
MW-2
MW-12
SB-2
MW-4
SUPER 12,000 GAL. UST
PLUS 12,000 GAL. UST
UNLEADED 12,000 GAL. UST
SB-8
SB-10
MW-14
SB-6
MW-6
VP-2
VACANT
SB-7
~GRASS~
~ASPHALT~
DISPENSER ISLAND
DISPENSER ISLAND
STORM SEWER EASEMENT D.B.442, P.193
MW-23
MW-16
SB-5
SB-3
MW-5
SB-4
CANOPY
MW-15
MW-22
MW-3R
VP-4
SIGN
ENTRANCE
SIDEWALK
MILL STREET
EAST MAIN STREET
DRAFTED BY: TP (EXTON)
CHECKED BY: JH
REVIEWED BY: EL
NORTH
SOIL BORING LOCATION MAP
KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA
Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
SCALE IN FEET
0 APPROXIMATE 20
DATE 02-24-15
FIGURE C-1

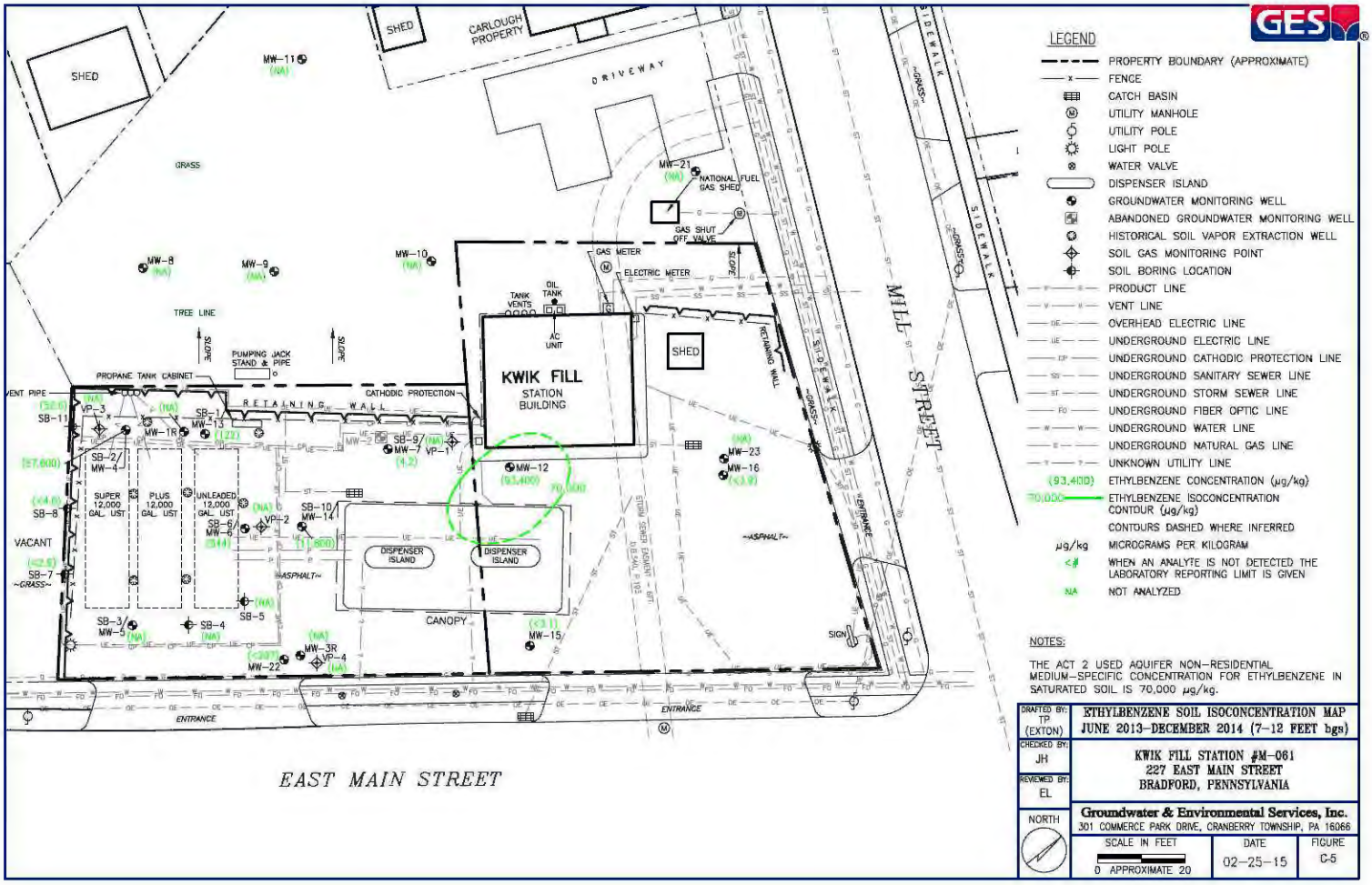


EAST MAIN STREET
MILL STREET
KWIK FILL
STATION BUILDING
CANOPY
DISPENSER ISLAND
DISPENSER ISLAND
SHED
CARLOUGH PROPERTY
DRIVEWAY
VACANT
GRASS
TREE LINE
RETAINING WALL
SIDEWALK
ENTRANCE
LEGEND
PROPERTY BOUNDARY (APPROXIMATE)
FENCE
CATCH BASIN
UTILITY MANHOLE
UTILITY POLE
LIGHT POLE
WATER VALVE
DISPENSER ISLAND
GROUNDWATER MONITORING WELL
ABANDONED GROUNDWATER MONITORING WELL
HISTORICAL SOIL VAPOR EXTRACTION WELL
SOIL GAS MONITORING POINT
SOIL BORING LOCATION
PRODUCT LINE
VENT LINE
OVERHEAD ELECTRIC LINE
UNDERGROUND ELECTRIC LINE
UNDERGROUND CATHODIC PROTECTION LINE
UNDERGROUND SANITARY SEWER LINE
UNDERGROUND STORM SEWER LINE
UNDERGROUND FIBER OPTIC LINE
UNDERGROUND WATER LINE
UNDERGROUND NATURAL GAS LINE
UNKNOWN UTILITY LINE
(3,680) BENZENE CONCENTRATION (µg/kg)
500 BENZENE ISOCONCENTRATION CONTOUR (µg/kg) CONTOURS DASHED WHERE INFERRED
µg/kg MICROGRAMS PER KILOGRAM
<# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
NA NOT ANALYZED
NOTES:
THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR BENZENE IN UNSATURATED/PERIODICALLY SATURATED SOIL IS 500 µg/kg.
DRAFTED BY: TP (EXTON)
CHECKED BY: JH
REVIEWED BY: EL
BENZENE SOIL ISOCONCENTRATION MAP
JUNE 2013-DECEMBER 2014 (2-7 FEET bgs)
KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA
Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH
SCALE IN FEET
0 APPROXIMATE 20
DATE 03-19-15
FIGURE C-2



GES
LEGEND
PROPERTY BOUNDARY (APPROXIMATE)
FENCE
CATCH BASIN
UTILITY MANHOLE
UTILITY POLE
LIGHT POLE
WATER VALVE
DISPENSER ISLAND
GROUNDWATER MONITORING WELL
ABANDONED GROUNDWATER MONITORING WELL
HISTORICAL SOIL VAPOR EXTRACTION WELL
SOIL GAS MONITORING POINT
SOIL BORING LOCATION
PRODUCT LINE
VENT LINE
OVERHEAD ELECTRIC LINE
UNDERGROUND ELECTRIC LINE
UNDERGROUND CATHODIC PROTECTION LINE
UNDERGROUND SANITARY SEWER LINE
UNDERGROUND STORM SEWER LINE
UNDERGROUND FIBER OPTIC LINE
UNDERGROUND WATER LINE
UNDERGROUND NATURAL GAS LINE
UNKNOWN UTILITY LINE
(2,560) BENZENE CONCENTRATION (μg/kg)
500 BENZENE ISOCONCENTRATION CONTOUR (μg/kg) CONTOURS DASHED WHERE INFERRED
μg/kg MICROGRAMS PER KILOGRAM
<# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
NA NOT ANALYZED
NOTES:
THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR BENZENE IN SATURATED SOIL IS 500 μg/kg.
KWIK FILL STATION BUILDING
EAST MAIN STREET
MILL STREET
SHED
CARLOUGH PROPERTY
DRIVEWAY
GRASS
TREE LINE
SLOPE
PUMPING JACK STAND & PIPE
PROPANE TANK CABINET
RETAINING WALL
CATHODIC PROTECTION
TANK VENTS
OIL TANK
AC UNIT
GAS METER
ELECTRIC METER
NATIONAL FUEL GAS SHED
GAS SHUT OFF VALVE
SIDEWALK
VENT PIPE
VACANT
SUPER 12,000 GAL. UST
PLUS 12,000 GAL. UST
UNLEADED 12,000 GAL. UST
DISPENSER ISLAND
DISPENSER ISLAND
CANOPY
ASPHALT
ENTRANCE
SIGN
STORM SEWER EASEMENT
MW-11 (NA)
MW-21 (NA)
MW-8 (NA)
MW-9 (NA)
MW-10 (NA)
VP-3 (NA)
SB-11 (81.7)
SB-1 (NA)
MW-13 (166)
MW-1R
SB-2/MW-4 (11,400)
5,000
500
SB-9/MW-7 (NA) (37.9)
VP-1
MW-12 (2,560)
MW-23 (NA)
MW-16 (<3.9)
SB-8 (<4.6)
SB-7 (<2.5)
SB-10/MW-14 (NA)
SB-6/MW-6 (377)
VP-2 (3,470)
SB-5 (NA)
SB-3/MW-5 (NA)
SB-4
MW-3R (NA)
VP-4 (NA)
MW-22 (<207)
MW-15 (<3.1)
DRAFTED BY: TP (EXTON)
CHECKED BY: JH
REVIEWED BY: EL
BENZENE SOIL ISOCONCENTRATION MAP
JUNE 2013–DECEMBER 2014 (7–12 FEET bgs)
KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA
Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH
SCALE IN FEET
0 APPROXIMATE 20
DATE 02-25-15
FIGURE C-3


GES
LEGEND
PROPERTY BOUNDARY (APPROXIMATE)
FENCE
CATCH BASIN
UTILITY MANHOLE
UTILITY POLE
LIGHT POLE
WATER VALVE
DISPENSER ISLAND
GROUNDWATER MONITORING WELL
ABANDONED GROUNDWATER MONITORING WELL
HISTORICAL SOIL VAPOR EXTRACTION WELL
SOIL GAS MONITORING POINT
SOIL BORING LOCATION
PRODUCT LINE
VENT LINE
OVERHEAD ELECTRIC LINE
UNDERGROUND ELECTRIC LINE
UNDERGROUND CATHODIC PROTECTION LINE
UNDERGROUND SANITARY SEWER LINE
UNDERGROUND STORM SEWER LINE
UNDERGROUND FIBER OPTIC LINE
UNDERGROUND WATER LINE
UNDERGROUND NATURAL GAS LINE
UNKNOWN UTILITY LINE
(104,000) TOLUENE CONCENTRATION (µg/kg)
100,000 TOLUENE ISOCONCENTRATION CONTOUR (µg/kg)
CONTOURS DASHED WHERE INFERRED
µg/kg MICROGRAMS PER KILOGRAM
<# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
NA NOT ANALYZED
NOTES:
THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR TOLUENE IN SATURATED SOIL IS 100,000 µg/kg.
SHED
CARLOUGH PROPERTY
DRIVEWAY
MW-11 (NA)
GRASS
MW-21 (NA)
NATIONAL FUEL GAS SHED
GAS SHUT OFF VALVE
MILL STREET
SIDEWALK
MW-8 (NA)
MW-9 (NA)
MW-10 (NA)
GAS METER
ELECTRIC METER
TREE LINE
TANK VENTS
OIL TANK
AC UNIT
KWIK FILL STATION BUILDING
SHED
RETAINING WALL
PUMPING JACK STAND & PIPE
PROPANE TANK CABINET
CATHODIC PROTECTION
VENT PIPE
(8.2) SB-11
(NA) VP-3
(NA) SB-1 MW-13 (14)
MW-1R
SB-2/MW-4 (971)
SB-9/MW-7 (<3.7)
(NA) VP-1
MW-2
MW-12 (104,000)
100,000
(NA) MW-23
MW-16 (<3.9)
SUPER 12,000 GAL. UST
PLUS 12,000 GAL. UST
UNLEADED 12,000 GAL. UST
(<4.0) SB-8
(NA) VP-2
SB-6/MW-6 (368)
SB-10 MW-14 (349)
VACANT
(<2.9) SB-7
~GRASS~
~ASPHALT~
DISPENSER ISLAND
DISPENSER ISLAND
CANOPY
STORM SEWER EASEMENT
(NA) SB-5
SB-3/MW-5 (NA)
SB-4 (NA)
(<3.1) MW-15
(NA) MW-3R
VP-4 (NA)
(<104) MW-22
SIGN
ENTRANCE
ENTRANCE
ENTRANCE
EAST MAIN STREET
DRAFTED BY: WAW (EXTON)
TOLUENE SOIL ISOCONCENTRATION MAP
JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)
CHECKED BY: JH
KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA
REVIEWED BY: EL
NORTH
Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
SCALE IN FEET
0 APPROXIMATE 20
DATE 03-19-15
FIGURE C-4



LEGEND

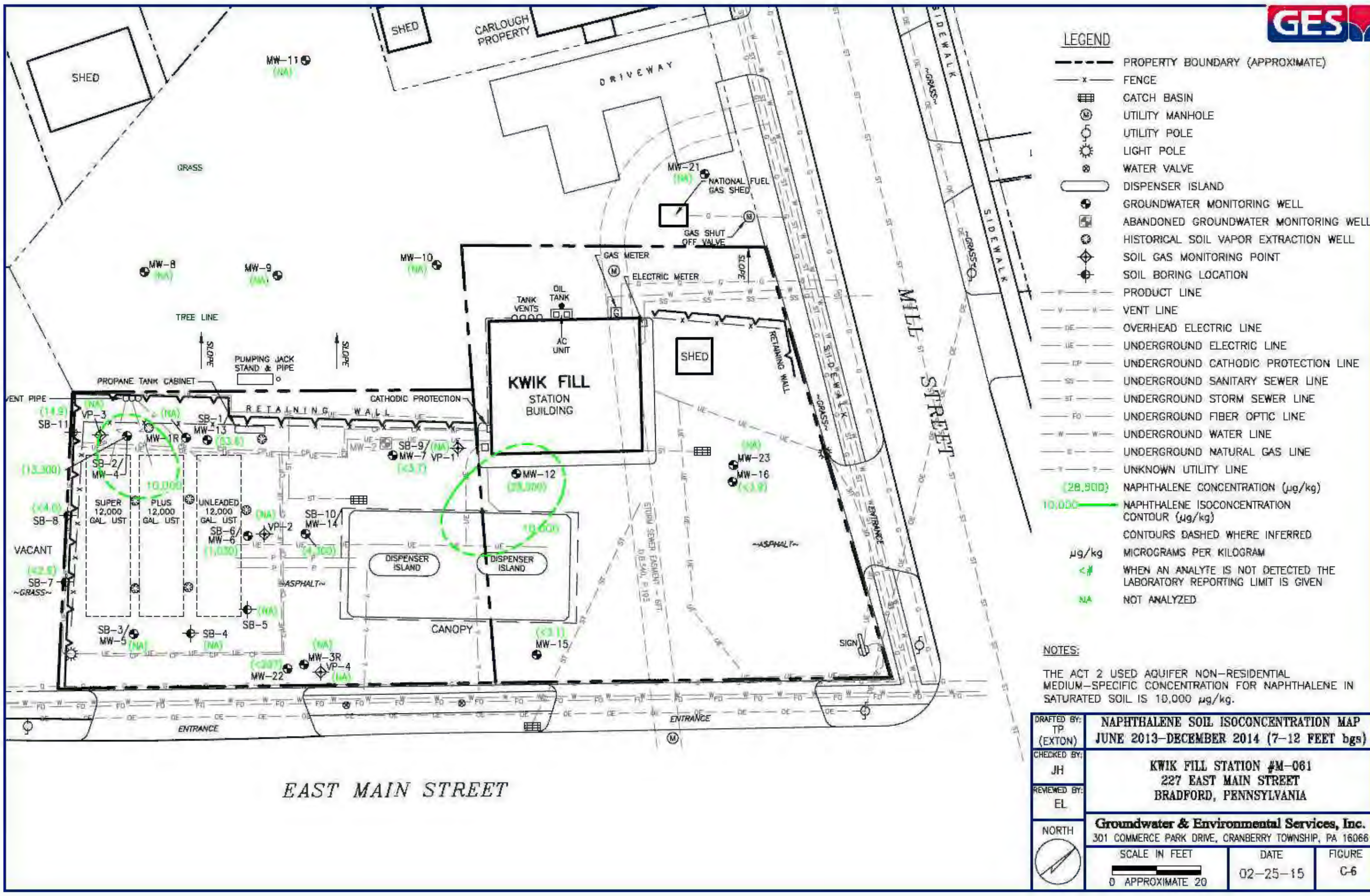
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (93,400) ETHYLBENZENE CONCENTRATION (µg/kg)
- 70,000 ETHYLBENZENE ISOCONCENTRATION CONTOUR (µg/kg)
- CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- NA NOT ANALYZED

NOTES:

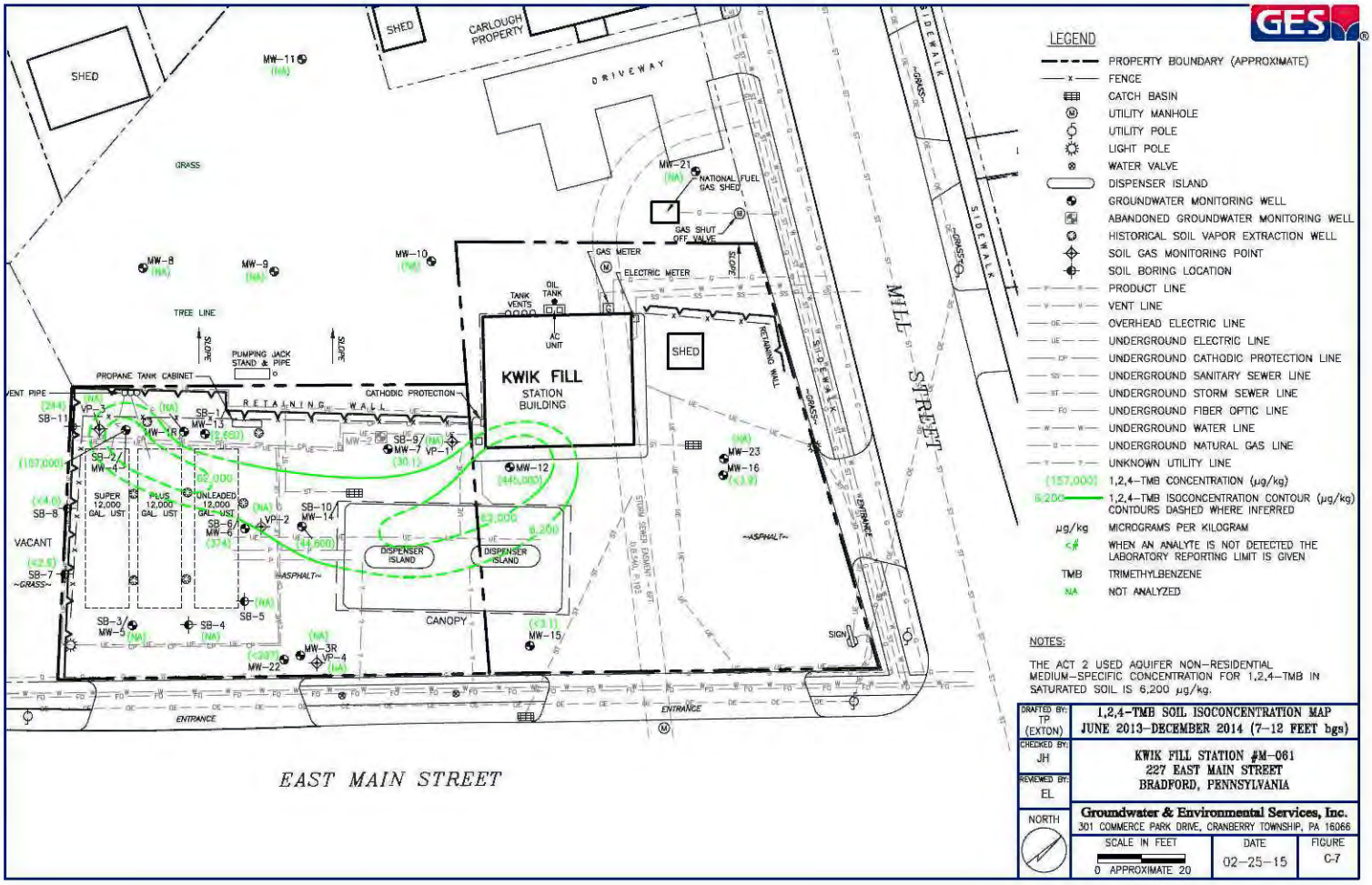
THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR ETHYLBENZENE IN SATURATED SOIL IS 70,000 µg/kg.

DRAFTED BY: TP (EXTON)	ETHYLBENZENE SOIL ISOCONCENTRATION MAP JUNE 2013–DECEMBER 2014 (7–12 FEET bgs)
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 APPROXIMATE 20 / DATE: 02-25-15 / FIGURE: C-5

M:\Graphics\5700-Pittsburgh\NRC\Kwik Fill\M-061 Bradford Old.dwg, 8.5in MW



GES
LEGEND
PROPERTY BOUNDARY (APPROXIMATE)
FENCE
CATCH BASIN
UTILITY MANHOLE
UTILITY POLE
LIGHT POLE
WATER VALVE
DISPENSER ISLAND
GROUNDWATER MONITORING WELL
ABANDONED GROUNDWATER MONITORING WELL
HISTORICAL SOIL VAPOR EXTRACTION WELL
SOIL GAS MONITORING POINT
SOIL BORING LOCATION
PRODUCT LINE
VENT LINE
OVERHEAD ELECTRIC LINE
UNDERGROUND ELECTRIC LINE
UNDERGROUND CATHODIC PROTECTION LINE
UNDERGROUND SANITARY SEWER LINE
UNDERGROUND STORM SEWER LINE
UNDERGROUND FIBER OPTIC LINE
UNDERGROUND WATER LINE
UNDERGROUND NATURAL GAS LINE
UNKNOWN UTILITY LINE
(28,500) NAPHTHALENE CONCENTRATION (µg/kg)
10,000 NAPHTHALENE ISOCONCENTRATION CONTOUR (µg/kg)
CONTOURS DASHED WHERE INFERRED
µg/kg MICROGRAMS PER KILOGRAM
<# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
NA NOT ANALYZED
NOTES:
THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR NAPHTHALENE IN SATURATED SOIL IS 10,000 µg/kg.
KWIK FILL STATION BUILDING
EAST MAIN STREET
MILL STREET
SHED
CARLOUGH PROPERTY
DRIVEWAY
GRASS
TREE LINE
PUMPING JACK STAND & PIPE
PROPANE TANK CABINET
CATHODIC PROTECTION
RETAINING WALL
VENT PIPE
VACANT
SUPER 12,000 GAL. UST
PLUS 12,000 GAL. UST
UNLEADED 12,000 GAL. UST
DISPENSER ISLAND
CANOPY
ENTRANCE
SIDEWALK
NATIONAL FUEL GAS SHED
GAS SHUT OFF VALVE
GAS METER
ELECTRIC METER
TANK VENTS
OIL TANK
AC UNIT
SIGN
MW-11 (NA)
MW-21 (NA)
MW-8 (NA)
MW-9 (NA)
MW-10 (NA)
VP-3 (NA)
SB-11 (14.9)
SB-1 (NA)
MW-13 (33.6)
MW-1R
SB-2/MW-4 (13,300)
SB-9/MW-7 (NA)
VP-1 (<3.7)
MW-12 (28,500)
MW-23 (NA)
MW-16 (<3.9)
SB-8 (<4.0)
SB-7 (<2.5)
SB-6/MW-6 (1,030)
VP-2 (NA)
SB-10/MW-14 (4,300)
SB-5 (NA)
SB-3/MW-5 (NA)
SB-4
MW-3R (NA)
VP-4 (NA)
MW-22 (<207)
MW-15 (<3.1)
10,000
DRAFTED BY: TP (EXTON)
CHECKED BY: JH
REVIEWED BY: EL
NAPHTHALENE SOIL ISOCONCENTRATION MAP JUNE 2013–DECEMBER 2014 (7–12 FEET bgs)
KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA
Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH
SCALE IN FEET
0 APPROXIMATE 20
DATE 02-25-15
FIGURE C-6



LEGEND

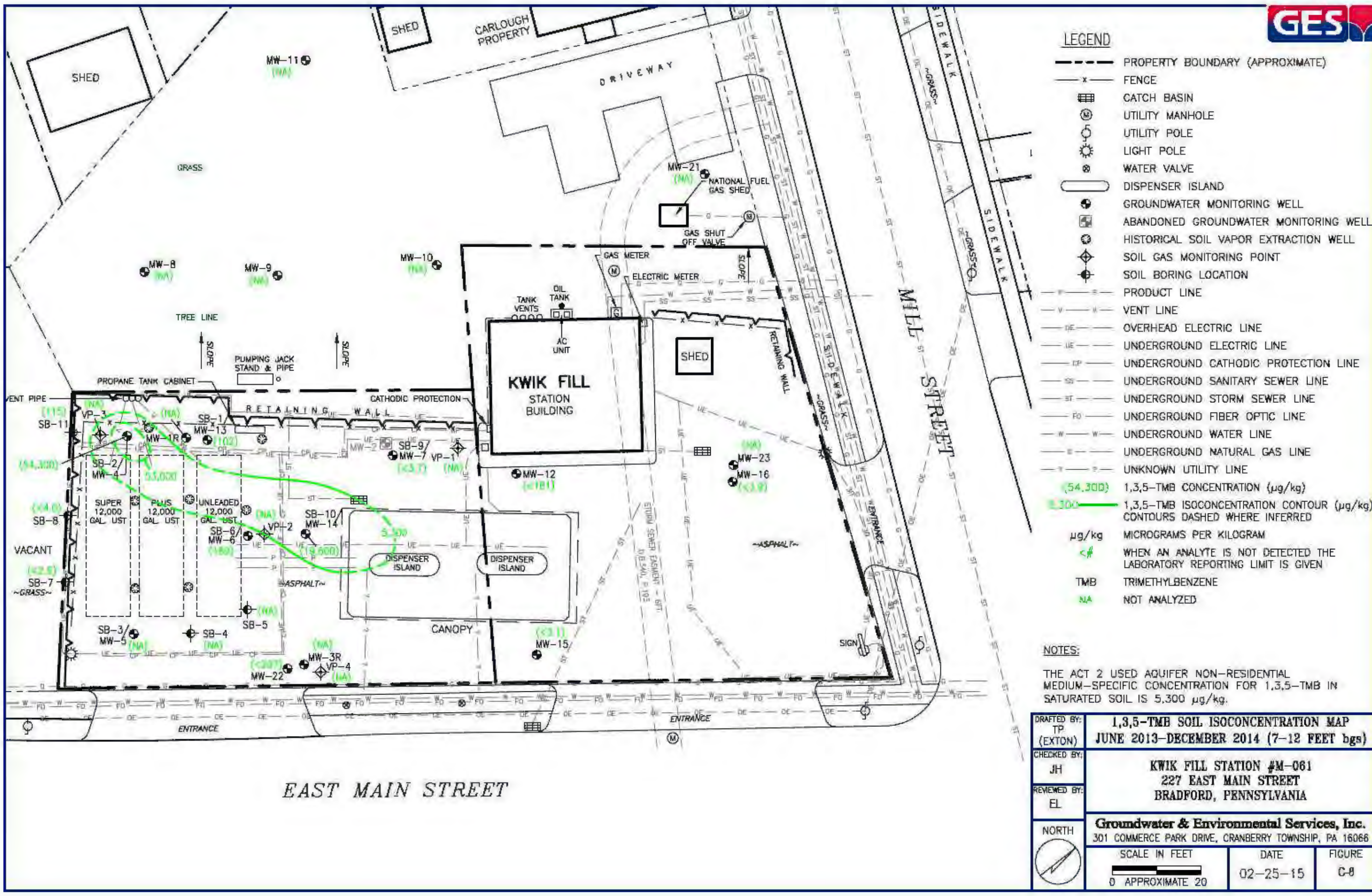
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (157,000) 1,2,4-TMB CONCENTRATION (µg/kg)
- 6,200 1,2,4-TMB ISOCONCENTRATION CONTOUR (µg/kg) CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- TMB TRIMETHYLBENZENE
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR 1,2,4-TMB IN SATURATED SOIL IS 6,200 µg/kg.

DRAFTED BY: TP (EXTON)	1,2,4-TMB SOIL ISOCONCENTRATION MAP JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 APPROXIMATE 20 / DATE: 02-25-15 / FIGURE: C-7

M:\Graphics\5700-Pittsburgh\NRC\Kwik Fill\M-061 Bradford\M061 Bradford Std.dwg, 8.5in MW



GES
LEGEND
PROPERTY BOUNDARY (APPROXIMATE)
FENCE
CATCH BASIN
UTILITY MANHOLE
UTILITY POLE
LIGHT POLE
WATER VALVE
DISPENSER ISLAND
GROUNDWATER MONITORING WELL
ABANDONED GROUNDWATER MONITORING WELL
HISTORICAL SOIL VAPOR EXTRACTION WELL
SOIL GAS MONITORING POINT
SOIL BORING LOCATION
PRODUCT LINE
VENT LINE
OVERHEAD ELECTRIC LINE
UNDERGROUND ELECTRIC LINE
UNDERGROUND CATHODIC PROTECTION LINE
UNDERGROUND SANITARY SEWER LINE
UNDERGROUND STORM SEWER LINE
UNDERGROUND FIBER OPTIC LINE
UNDERGROUND WATER LINE
UNDERGROUND NATURAL GAS LINE
UNKNOWN UTILITY LINE
(54,300) 1,3,5-TMB CONCENTRATION (μg/kg)
5,300 1,3,5-TMB ISOCONCENTRATION CONTOUR (μg/kg) CONTOURS DASHED WHERE INFERRED
μg/kg MICROGRAMS PER KILOGRAM
<# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
TMB TRIMETHYLBENZENE
NA NOT ANALYZED
NOTES:
THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR 1,3,5-TMB IN SATURATED SOIL IS 5,300 μg/kg.
DRAFTED BY: TP (EXTON)
CHECKED BY: JH
REVIEWED BY: EL
1,3,5-TMB SOIL ISOCONCENTRATION MAP
JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)
KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA
Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH
SCALE IN FEET
0 APPROXIMATE 20
DATE 02-25-15
FIGURE C-8
KWIK FILL STATION BUILDING
EAST MAIN STREET
MILL STREET
CARLOUGH PROPERTY
DRIVEWAY
SHED
CANOPY
DISPENSER ISLAND
SUPER 12,000 GAL. UST
PLUS 12,000 GAL. UST
UNLEADED 12,000 GAL. UST
VACANT
ENTRANCE
SIDEWALK
RETAINING WALL
MW-11 (NA)
MW-8 (NA)
MW-9 (NA)
MW-10 (NA)
MW-21 (NA)
MW-12 (<181)
MW-23 (NA)
MW-16 (<3.8)
MW-15 (<3.1)
MW-22 (<207)
MW-3R (NA)
VP-4 (NA)
SB-11 (115)
SB-8 (<4.6)
SB-7 (<2.5)
SB-2/MW-4 (54,300)
MW-1R 53,000
SB-1/MW-13 (102)
SB-9/MW-7 (<3.7)
VP-1 (NA)
SB-6/MW-6 (180)
SB-10/MW-14 (18,600)
VP-2 (NA)
SB-5 (NA)
SB-3/MW-5 (NA)
SB-4
5,300

Table D-1

SOIL GAS DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Location	Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Isopropylbenzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
PADEP Residential MSC $_{SG}$		**0.27**	**56**	**1.9**	**14**	**8.1**	**54**	**0.42**	**0.83**	**0.83**
PADEP Non-Residential MSC $_{SG}$		**1.1**	**120**	**7.3**	**30**	**31**	**110**	**0.88**	**1.7**	**1.7**
VP-1	11/06/13	<0.0032	0.0264	<0.0044	<0.0132	<0.0037	<0.005	<0.0053	<0.005	<0.005
	01/09/14	<0.0029	<0.0226	<0.0039	<0.0118	<0.0032	<0.0044	<0.0047	<0.0044	<0.0044
VP-2	11/06/13	**23.5**	<1.2	<1.4	<4.1	<1.1	<1.5	***<1.6***	***<1.5***	***<1.5***
VP-3	11/06/13	<0.11 D3	<0.13	<0.15	<0.45	<0.12	<0.17	<0.18	<0.17	<0.17
	11/06/13 Dup	<0.11 D3	<0.13	<0.15	<0.45	<0.12	<0.17	<0.18	<0.17	<0.17
	01/09/14	<0.01	<0.012	<0.014	<0.041	<0.011	<0.015	<0.017	<0.015	<0.015
	01/09/14 Dup	<0.01	<0.012	<0.014	<0.041	<0.011	<0.015	<0.017	<0.015	<0.015
VP-4	11/06/13	<0.059 D3	<0.07	<0.081	<0.241	<0.067	<0.091	<0.097	<0.091	<0.091
	01/09/14	<0.22 D3	<0.26	<0.3	<0.91	<0.25	<0.34	<0.37 1M	<0.34	<0.34

NOTES

MSC_{SG}	Soil Gas Medium-Specific Concentration (Soil vapor transfer [attenuation] factor of 0.01 applied to MSC_{IAQ} screening criteria per PADEP 2004 soil vapor technical guidance to calculate the MSC_{SG}).
MTBE	methyl tert-butyl ether
TMB	trimethylbenzene
PADEP	Pennsylvania Department of Environmental Protection
VP	Soil gas sample location
Dup	Duplicate sample from specified location
D3	Sample diluted due to the presence of high levels of non-target anaytes or other matrix interference.
1M	This analyte did not meed the secondary source verification criteria for the initial calibration, with 52% recovery for naphthalene (accptance criteria is 60-140%).
<0.005	Reporting limit exceedance (reporting limit > PADEP MSC_{SG} screening criteria)
0.010	Detected concentration exceeds PADEP MSC_{SG} screening criteria

All values reported in milligrams per cubic meter (mg/m^3).
Source for screening criteria is Commonwealth of Pennsylvania, Department of Environmental Protection, Land Recycling Program Technical Guidance Manual-Section IV.A.4, Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard, 2004.